

Harold W. Sams

PHOTOFACT SERVICE



AIRADIO
MODEL SU-41D

AIRADIO
MODEL SU-41D

AIRADIO MODEL SU-41D

TRADE NAME	Airadio Model SU-41D- The Super "41"					
MANUFACTURER	Airadio, Inc., Melrose Ave. and Barryplace, Stamford, Conn.					
TYPE SET	Battery Operated Superheterodyne Aircraft Receiver					
TUBES (FIVE)	Types, 1LN5 RF Amp., 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 1LB4 Power Output.					
POWER SUPPLY	1.5 Volt "A" Supply & 90 Volt "B" Supply in Battery Pack Form					
RATING	250 MA @ 1.5 V DC and 10.3 MA @ 86 V DC					
TUNING RANGE	BROADCAST 195-420 KC					
ALIGNMENT INSTRUCTIONS						
To set pointer, turn variable fully closed and set pointer at last reference mark at the low frequency end of the dial. Set volume control at maximum volume and keep input from signal generator higher than is necessary to obtain output reading. Set TOWER-VOICE-RANGE switch to range position. Use insulated alignment screwdriver for adjusting.						
DIAL ANALYST	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.1 ML.	High side to pin #3 of 1L6. Low side to chassis.	90KC	High freq. end	Across phone jack terminals	A1,A2, A3,A4.	Adjust for maximum output.
50 MMF.	High side to ext. ant. Low side to chassis.	400KC	400KC	"	A5	" " " "
50 MMF.	"	"	"	"	A6,A7	" " " "
50 M.F.	"	200KC	200KC	"	A8	" " " "
50 MMF.	"	"	"	"	A9,A10	" " " "
Repeat last four steps until no further improvement can be made.						

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TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		ATRADIO PART No.	STANDARD REPLACEMENT		
1	RF Amp.	1LN5	1LN5	7AO	
2	Converter	1LA6	1LA6	7AK	
3	IF Amp.	1LN5	1LN5	7AO	
4	Det.-AVC-AF	1LH4	1LH4	5AG	
5	Power Output	1LB4	1LB4	5AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

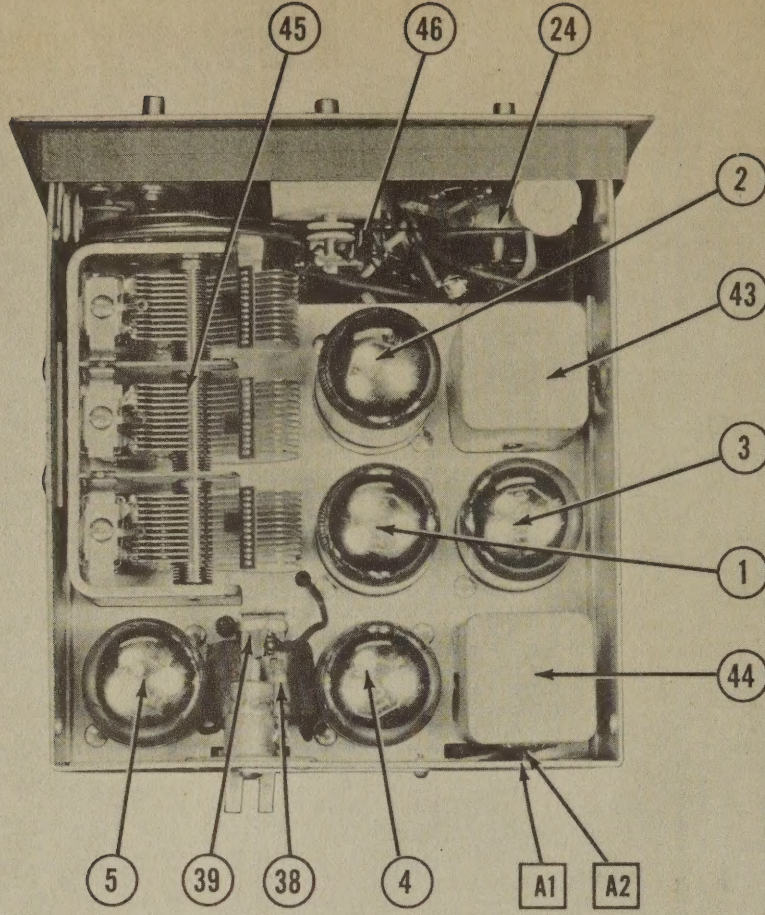
ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES
		ATRADIO PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6	CAP. 10		M-10-150	UT-122 PRS150-12		BR1225	PMT. Supp. Bypass
7	.01		TTF-1-01			MT125	Output Plate Bypass
8	.01		TTF-1-01			MT125	Audio Coupling
9	.01		TTF-1-01			MT125	"
10	.1		TTF-1-1			MT145	Screen Bypass
11	.1		TTF-1-1			MT145	Conv. Screen Bypass
12	.1		TTF-1-1			MT145	Pwr. Supp. Bypass
13	.01		TTF-1-01			MT125	AVC Filter
14	.01		TTF-1-01			MT125	Ant. Coupling
15	1000		M0-3-21			MC255	Range Filter
16	1000		M0-3-21			MC255	"
17	1000		M0-3-21			MC255	"
18	1000		M0-3-21			MC255	"
19	1000		M0-3-21			MC255	"
20	100		M0-5-31			MC235	IF Bypass Diode
21	100		M0-5-31			MC235	Fixed Pad
22	700		M0-3-37			MC235	Volume Cont.
23	50		M0-5-45			MC225	Osc. Grid Capacitor
24	1000		M0-3-21			MC255	AVC Filter

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		ATRADIO PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
24	500KΩ B Shaft C Switch					Volume Control Attach to 24A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		ATRADIO PART No.	IRC PART No.	
25	470KΩ		BTS-470K	Y1.-V1.-Y1. AVC Network
26	200KΩ		BTS-220K	Red-Blk.-Y1. Oscillator Grid
27	68KΩ		BTS-68K	Blue-Gray-Or. Oscillator Screen Dropping
28	680KΩ		BTS-680K	Blue-Gray-Y1. AVC Network
29	47KΩ		BTS-47K	Y1.-V1.-Or. Diode RF Filter
30	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. Diode Load
31	10 Meg.		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
32	2 Meg.		BTS-2 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
33	2.2 Meg.		BTS-2.2 Meg.	Red-Red-Grn. Output Grid
34	68KΩ		BW-2-68	Blue-Gray-Blk. Bias
35	75KΩ			V1.-Grn.-Or. Range Filter
36	150KΩ		BTS-150K	Br.-Grn.-Y1. " "
37	150KΩ		BTS-150K	Br.-Grn.-Y1. " "
38	22KΩ		BTS-22K	Red-Red-Or. Antenna Loading



PARTS LIST AND DESCRIPTIONS (Continued) TRANSFORMER (OUTPUT)

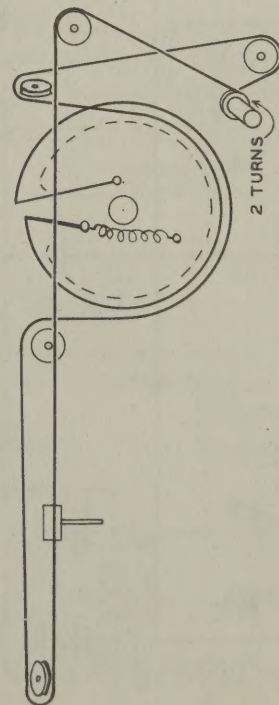
ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI. SEC.	PRI. SEC.	AIRADIO PART No.	THORNDYKE PART No.	
39	7300Ω	500Ω	450Ω	20Ω			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIRADIO PART No.	MEISSNER PART No.	
40A	Ant. Coil	44Ω	44Ω			
41	RF Coil	20Ω	48Ω			
42	Det. Coil	11Ω	28Ω			
43	Osc. Coil	23Ω	23.3Ω			
44	Input IF	23.5Ω	23.5Ω			

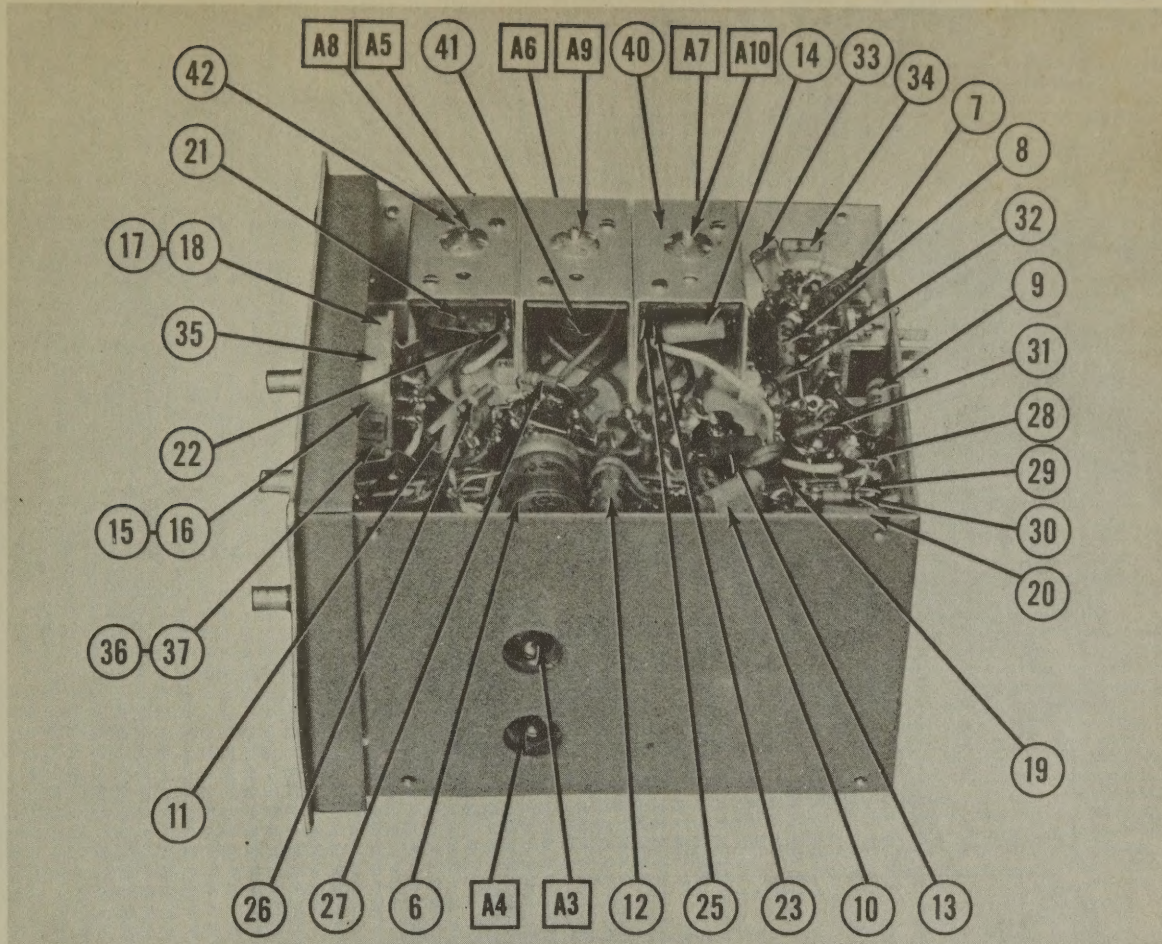
MISCELLANEOUS

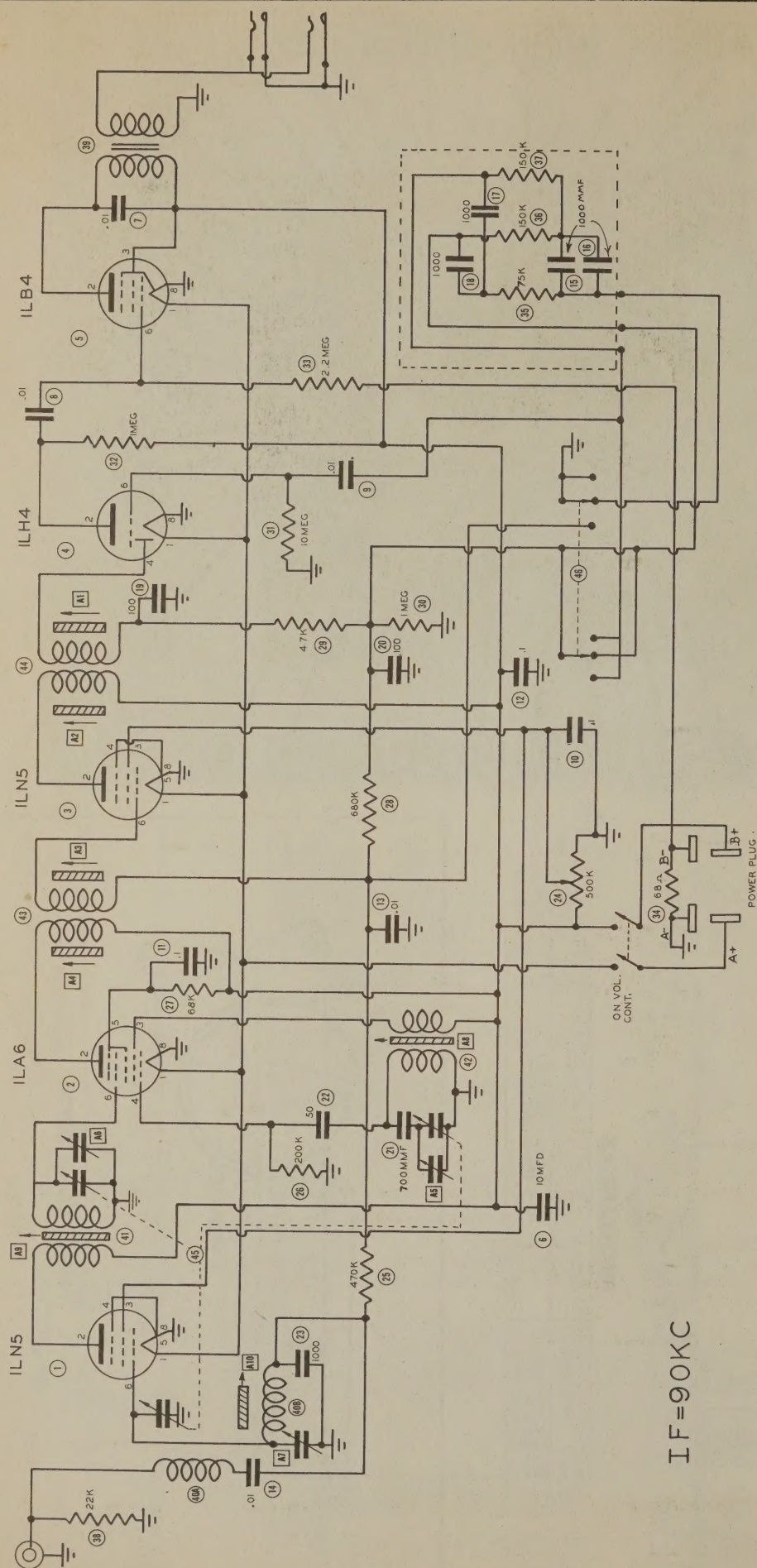
ITEM No.	PART NAME	AIRADIO PART No.	NOTES
45	Tuning Cap. Switch	PWB-1D	
46	Battery Pack		3 Gang Var. Cap. "Tower-Voice-Range"



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





IF=90KC

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

VOLTAGE READINGS:

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1ILN5	1.5VDC	86VDC	86VDC	0V	0V	-1VDC	-1VDC	0V
2	2ILA6	1.5VDC	86VDC	86VDC	0V	44VDC	0V	86VDC	0V
3	3ILN5	1.5VDC	86VDC	86VDC	0V	0V	-1VDC	86VDC	0V
4	4ILH4	1.5VDC	57VDC	86VDC	-2VDC	-1VDC	-1VDC	-1VDC	0V
5	5ILB4	1.5VDC	86VDC	86VDC	0V	-1VDC	-1VDC	-8VDC	0V

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1ILN5	*	20K Ω	20K Ω	0 Ω	0 Ω	1.8MEG Ω	1.4MEG Ω	*
2	2ILA6	*	20K Ω	20K Ω	215K Ω	280K Ω	43 Ω	210K Ω	*
3	3ILN5	*	20K Ω	20K Ω	0 Ω	0 Ω	1.4MEG Ω	210K Ω	*
4	4ILH4	*	1.2MEG Ω	20K Ω	930K Ω	1.1MEG Ω	8MEG Ω	1.4MEG Ω	*
5	5ILB4	*	20K Ω	20K Ω	17 Ω	2MEG Ω	2MEG Ω	590 Ω	*

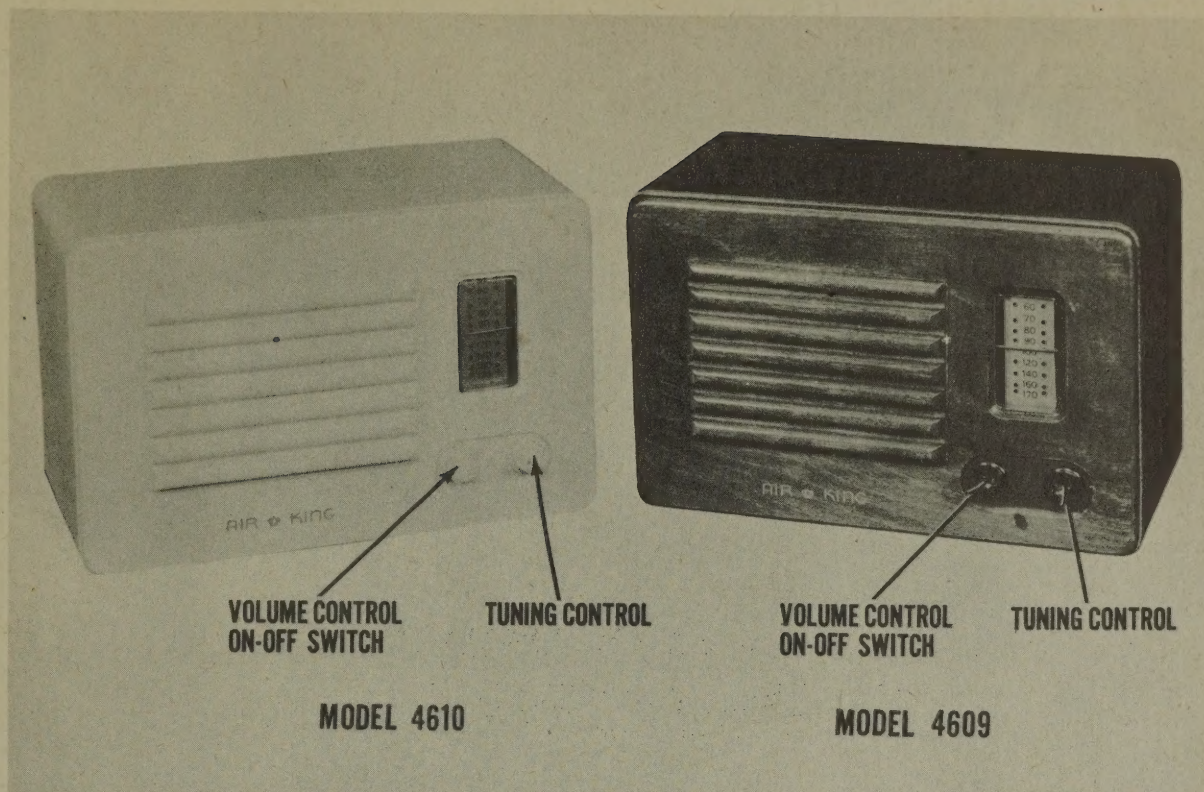
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

471-1

- 1 - DC Voltage measurements are at 20,000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- 5 - Volume control at maximum, no signal applied for voltage measurements.

AIR KING
MODELS 4609, 4610



AIR KING
MODELS 4609, 4610

AIR KING MODELS 4609, 4610

TRADE NAME Air King, Models 4609, 4610 MANUFACTURER Air King Products Co., Inc., 1523 63rd St., Brooklyn, N.Y. TYPE SET AC-DC Operated Superheterodyne Receiver TUBES (FIVE) Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.						
POWER SUPPLY 105-125 Volts AC-DC TUNING RANGE—BROADCAST 540-1720KC RATING .225 Amp. @ 117 Volts AC						
ALIGNMENT INSTRUCTIONS						
Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and chassis. Set volume control at maximum volume and keep input from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD.	High side to stator of rear section of variable. Low side to chassis.	455KC	High freq. end.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200 MFD.	High side to ext. ant. Low side to chassis.	1600KC	1600KC	"	A5	Adjust for maximum output.
200 MFD.	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS TUBES

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		AIR KING PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Converter	12SK7GT	12SK7GT	8AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		AIR KING PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
6A	CAP.	2089	M-2X40-150	TA-440	PRSA150-40-40	2N511
7	150		S-4-05	TC-15	484-05	TP428
8	40		S-4-01	TC-11	484-01	TP421
9	.05		S-4-02	TC-12	484-02	TP423
10	.02		S-3-002	TC-22	684-002	TP405
11	.05		S-4-05	TC-15	484-05	TP426
12	.05		S-4-05	TC-15	484-05	TP426
13	.001		S-6-001	TC-21	684-001	TP423
14	.005		S-6-004	TC-25	484-005	TP404
15	220		MO.5-32	1FM-32	1468-0002	MC237
16	47		MO.5-45	1FM-45	1468-0005	MC226
						Line Filter - Blue
						Output Plate Bypass
						Audio Coupling
						RF Bypass Pwr. Supp.
						AVC Filter
						Audio Plate Bypass
						Ant. Coupling
						IF Bypass Vol. Cont.
						Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIR KING PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	RESIST-ANCE		MR43	D13-133	M-60-Z	Volume Control
B	500KΩ		Not Req.	A	Not Req.	Attach to 17A per instructions
C	Switch		M26	41	SM-A	" " " " " "

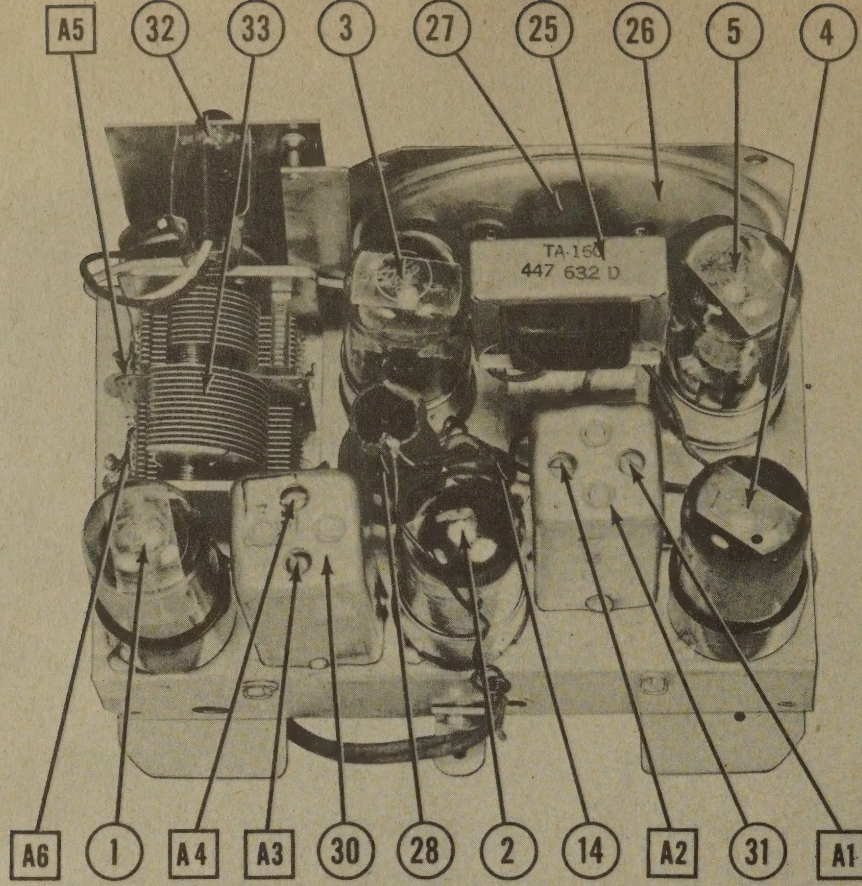
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		AIR KING PART No.	IRC PART No.	IRC PART No.	
18	RESISTANCE			BTS-15K	Br.-Grn.-Or. Oscillator Grid
19	15KΩ			BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	2.2 Meg.			BTS-4.7 Meg.	Yl.-Yl.-Grn. 1st AF Grid
21	4.7 Meg.			BTS-220K	Red-Red-Yl. 1st AF Plate Load
22	220KΩ			BTS-150K	Br.-Grn.-Yl. Output Grid
23	150KΩ			BW-2-18	Br.-Gray-Blk. Rectifier Ballast
24	18Ω			ETA-2200	Red-Red-Red Filter
	2200Ω				

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	SEC.	PRI.	AIR KING PART No.	THORDARN PART No.	
25	2000Ω	2.92	144Ω	.54Ω	Part of 5867	T14862†	†Bend mounting tabs down, file slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA	INSTALLATION NOTES
26	FIELD PM	AIR KING PART No. 5867	JENSEN PART No. ST-113 Mod. P4-X
27	VC IMP. 2.5Ω	VC DIA. 1/2"	NOT READILY REPLACABLE - USE COMPLETE SPEAKER UNIT.

R F COILS

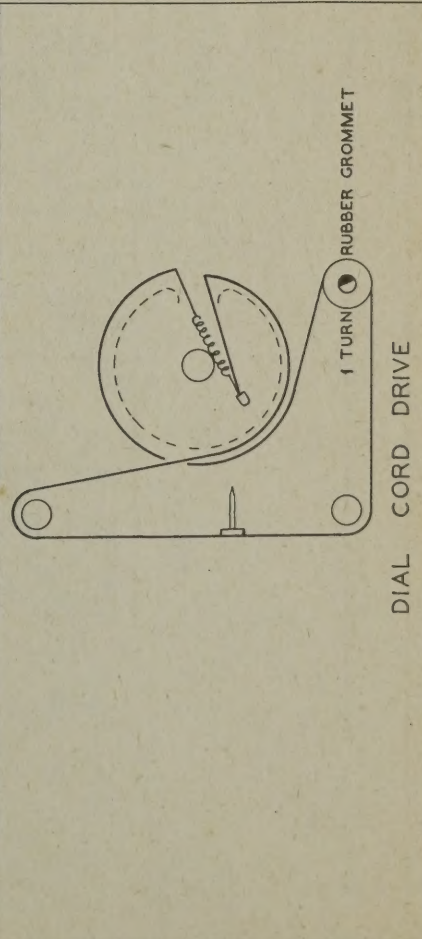
ITEM No.	USE	DC RES.	REPLACEMENT DATA	INSTALLATION NOTES
		PRI.	SEC.	
28	Ant. Coil	60Ω	5Ω	
29	Osc. Coil	4.5Ω	13Ω	
30	Input IF	11.5Ω	11.5Ω	
31	Output IF	11.5Ω	11.5Ω	

DIAL LIGHT

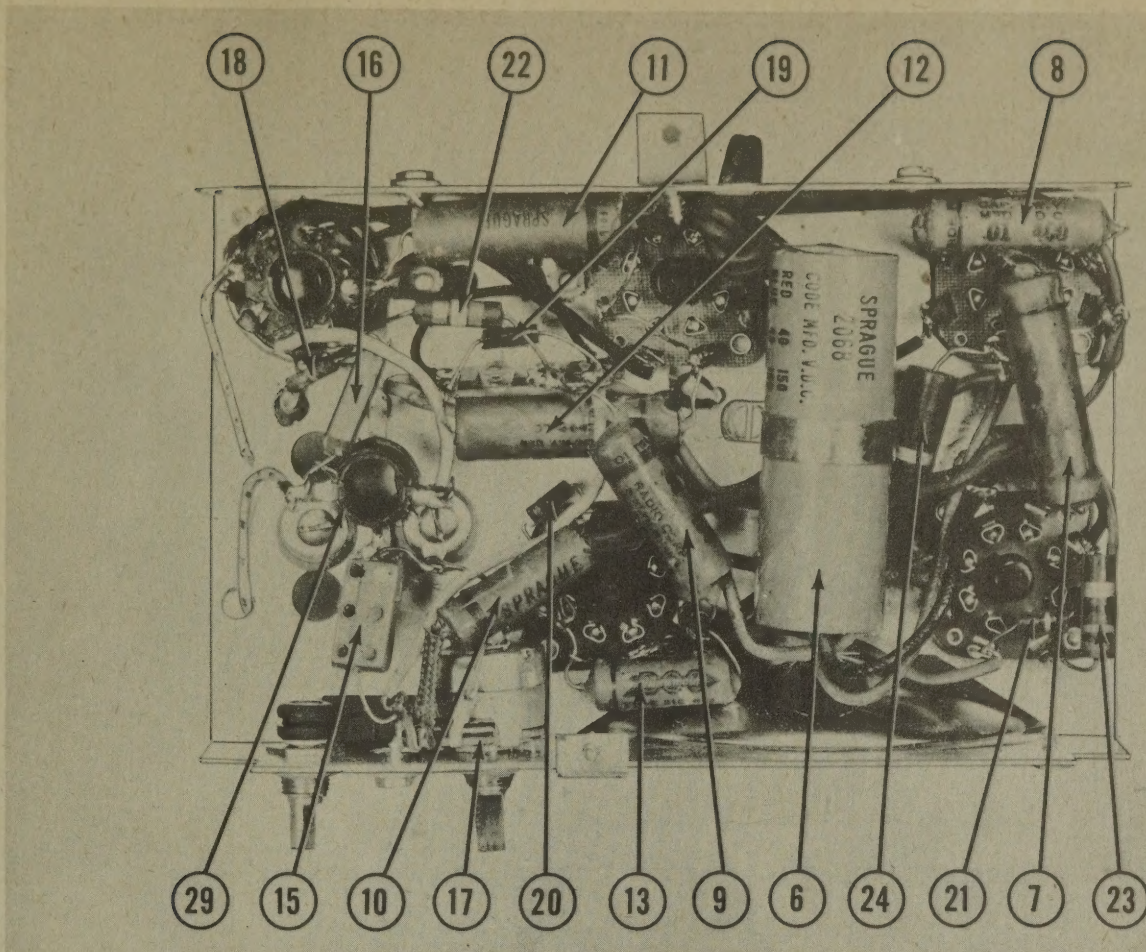
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA	INSTALLATION NOTES
					AIR KING PART No.	
32	Bayonet	6-8	0.15	Brwn		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	AIR KING PART No.	NOTES
33	2 Gang Var. Cap	1662-D	Ant. & Osc. Trimmers Included



CHASSIS—BOTTOM VIEW

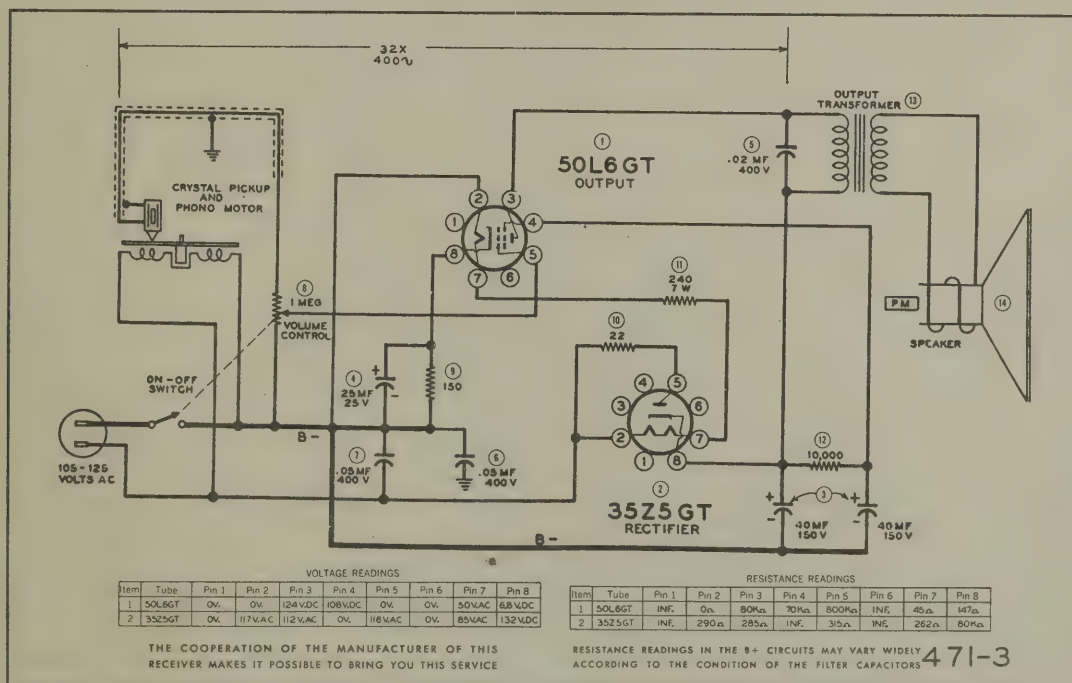




VOLUME CONTROL
ON-OFF SWITCH

CORONADO MODEL 43-2027

TRADE NAME Coronado Model 43-2027
MANUFACTURER Coronado, Minneapolis, Minn. - Los Angeles, Calif.
TYPE SET AC Operated Record Player with Two Tube Amp. & Speaker
TUBES (TWO) Types, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY 105-125 Volts AC RATING .220 Amps. @ 117V AC



- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		CORONADO PART No.	STANDARD REPLACEMENT		
1	Power Output	50L6GT	50L6GT	7AC	
2	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		CORONADO PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
3A	40 CAP.	A-8C-11119	DY-2x40-150	EL-25	AF880	FP214
B	40					
4	25	A-8C-11678	M-25-25	TA-25	PRS25-25	TC26
5	.02	C-8D-10774	S-4-02	TC-12	484-02	TP423
6	400	C-8D-10812	S-4-05	TC-15	484-05	TP426
7	.05	C-8D-10812	S-4-05	TC-15	484-05	TP428

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION NOTES
		CORONADO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
8A	1 Meg. ANCE	A-10A-11555	KK402	D13-133	AM-33-2	Volume Control
B	Shaft	Not Req.	Not Req.	E	KSS-3	Attach to 8A per Instructions
C	Switch		M26	41	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		CORONADO PART No.	IRC PART No.	
9	150Ω	C-9B1-52	BW-1-150	Br.-Grn.-Br. Output Cathode
10	22Ω	C-9B1-3	BW-1-22	Red-Red-Blk. Rectifier Ballast
11	240Ω	B-9C-11559	AB-250	Line Dropping
12	10KΩ	C-9B1-74	BTS-10K	Br.-Blk.-Or. Filter

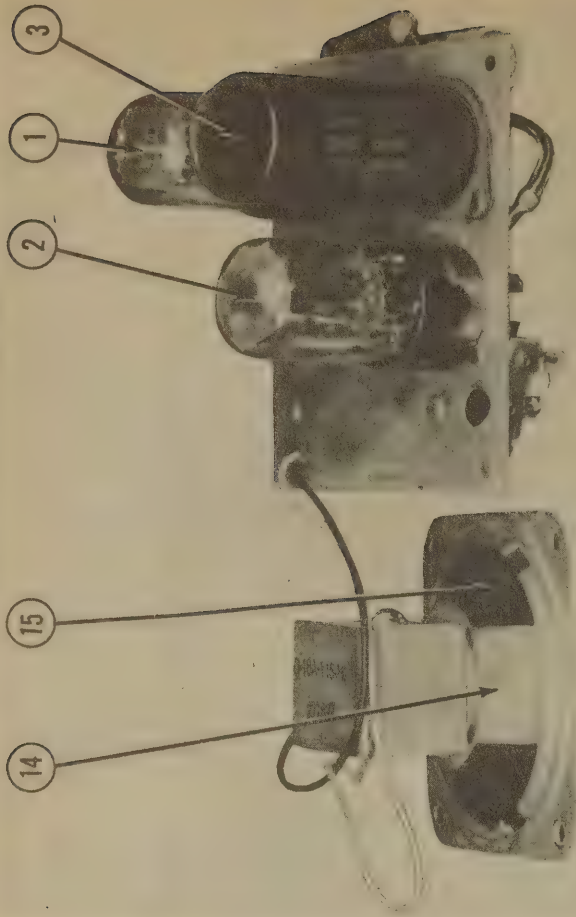
TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA		INSTALLATION NOTES
		CORONADO PART No.	STANCOR PART No.	
13	2300Ω 3.7Ω 190Ω .7Ω	B-12C-10074	A-3676	T22845

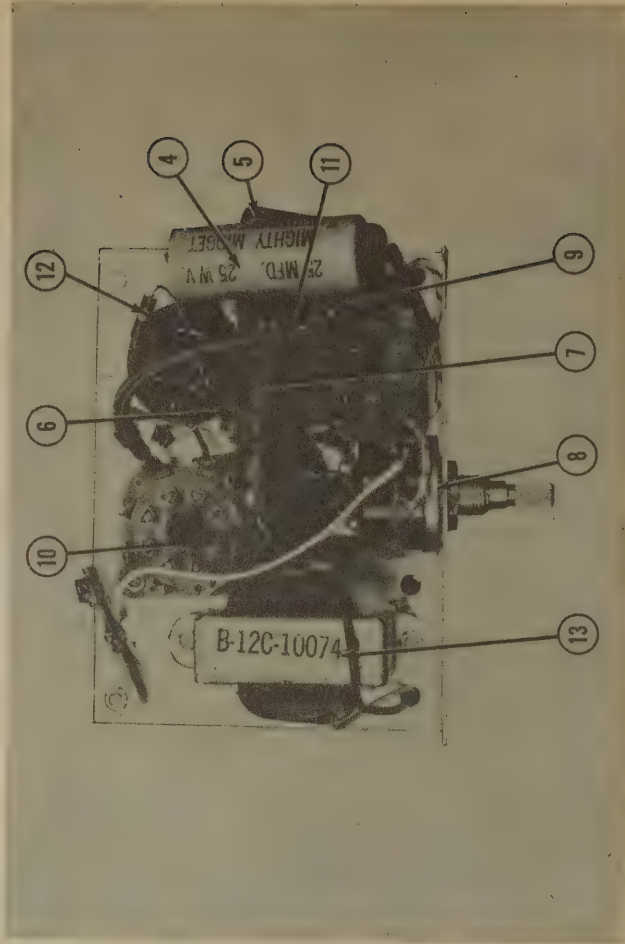
SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		CORONADO PART No.	JENSEN PART No.	
14	FIELD PM VC IMP. 3.7Ω	B-18A-11546		
15	CONE DIA. VC DIA. 3-3/8" 1/2"	NOT READILY REPLACABLE	USE COMPLETE SPEAKER UNIT	

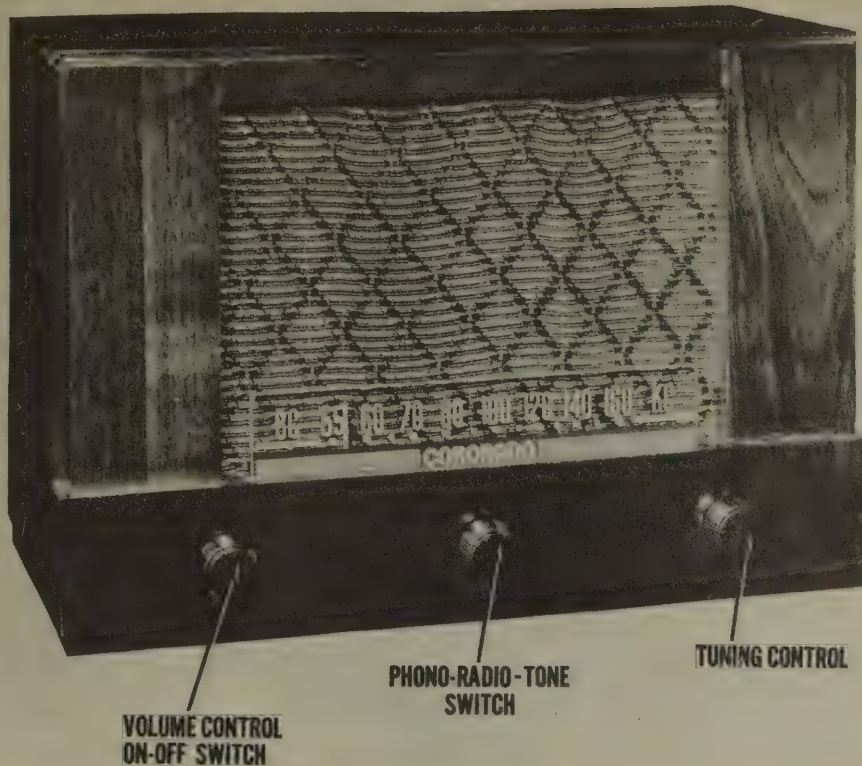
CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



CORONADO
MODEL 43-8685



CORONADO
MODEL 43-8685

CORONADO MODEL 43-8685

TRADE NAME	Coronado, Model 43-8685
MANUFACTURER	Coronado, Minneapolis, Minn., and Los Angeles, Calif.
TYPE SET	AC Operated Superheterodyne Receiver - Self contained Loop Antenna
TUBES (SIX)	Types 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC
TUNING RANGE-BROADCAST	535 - 1620 KC
	RATING .500 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS

Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Keep chassis and loop in the same relative position as they are in when mounted in the cabinet. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 Mfd	High side to pin #8 (grid) of 6SA7. Low side to chassis.	455KC	High freq. end (Tuning control full clockwise)	Across Voice Coil	A1, A2, A3, A4	Adjust for maximum output.
100 MMF	High side to ant. clip. Low side to chassis.	1620KC	"	"	A5	" " " "
"	"	1400KC	Tune for max. output	"	A6, A7	" " " "

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		CORONADO PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det-AVC-AF	6SQ7	6SQ7	8Q	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

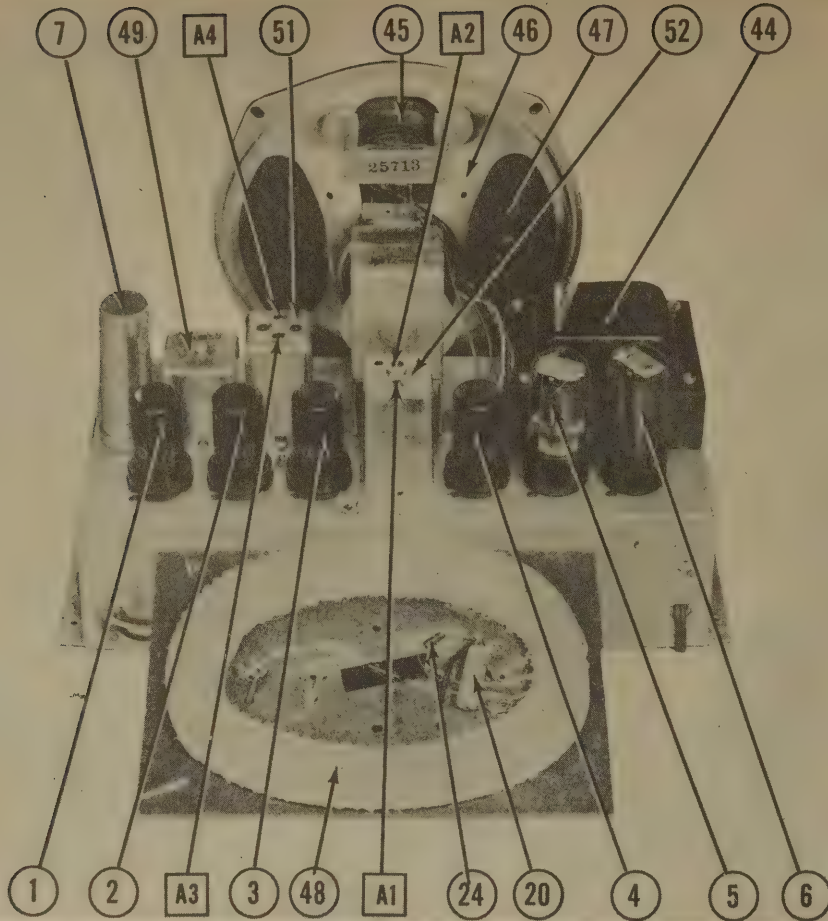
ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		CORONADO PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	
7A	15 450	25688	DY-312	EL-353	AF44J	UF6B/38	FP239
7B	15 450						
7C	20 25						
8	.005 600		S-6-.005	TC-25	PRS25-25	BR202A	TP408
9	.005 600		S-6-.005	TC-25	684-.005	DT6D5	TP408
10	.05 200		S-4-.05	TC-15	684-.005	DT6D5	TP426
11	.06 400		S-6-.005	TC-25	484-.005	DT6D5	TP408
12	.01 400		S-4-.01	TC-11	484-.01	DT4S1	TP421
13	.05 400		S-6-.005	TC-25	484-.005	DT6D5	TP408
14	.05 400		S-6-.005	TC-15	484-.01	DT6S5	TP415
15	.1 400		S-4-.1	TC-1	484-.1	DT4F1	TP428
16	.05 200		S-4-.05	TC-15	484-.05	DT4S5	TP426
17	.05 200		S-4-.05	TC-15	484-.05	DT4S5	TP426
18	.05 200		S-4-.05	TC-15	484-.05	DT4S5	TP426
19	.05 200		S-4-.05	TC-15	484-.05	DT4S5	TP426
20	.01 400		S-4-.01	TC-11	484-.01	DT4S1	TP421
21	200 500		M0.5-.32	LFM-32	1468-.0002	5W5T2	MC237
22	100 500		M0.5-.31	LFM-31	1468-.0001	5W5T1	MC235

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		CORONADO PART No.	MALLORY PART No.	CLAROSTAT PART No.	
23A	2.2Meg	25690	TY254	T-115	Volume Control
23B	Short	Not Req.	Not Req.	Not Req.	Attach to 23A per Instr.
23C	Switch	M26	41	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		CORONADO PART No.	IRC PART No.	
24	1000Ω		BTS-1000	Br. - Blk. - Red
25	100KΩ		BTS-100K	Br. - Blk. - Yl.
26	470Ω		BTS-470	Yl. - Vi. - Br.
27	100KΩ		BTS-100K	Br. - Blk. - Yl.
28	22KΩ		BTS-22K	Red - Red - Or.
29	470Ω		BW-1-470	Yl. - Vi. - Br.
30	22KΩ		BT-2-22K	Red - Red - Or.
31	1Meg		BTS-1 Meg	Br. - Blk. - Grn.
32	470KΩ		BTS-470K	Yl. - Vi. - Yl.
33	15 Meg		BTS-15 Meg	Br. - Grn. - Blue
34	220KΩ		BTS-220K	Red - Red - Yl.
35	1 Meg		BTS-1 Meg	Br. - Blk. - Grn.
36	220KΩ		BW-2-330	Red - Yl.
37	330Ω		BTS-330	Or. - Br.
38	2.2 Meg		BTS-2.2Meg	Red - Red - Grn.
39	22KΩ		BTS-22K	Red - Red - Or.
40	33KΩ		BTS-33K	Or. - Or. - Or.
41	470KΩ		BTS-470K	Yl. - Vi. - Yl.
42	1 Meg		BTS-1 Meg	Br. - Blk. - Grn.
43	3.3Ω		BW-3-3.3	Or. - Or. - Gold



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	CORONADO PART No.	STANCOR PART No.	
44	117VAC @ .5 A	620VCT @ 1.8A	5.1VAC @ 1.9A	25723	P-61201*	*Drill new mounting holes. † Use universal mounting brackets.

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		CORONADO PART No.	THORDARN PART No.	
45	3300Ω	3.8Ω	240Ω	25713	T22S46	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		INSTALLATION NOTES
	Field Res.	V.C. Imp.		CORONADO PART No.	JENSEN PART No.	
46	500Ω	3-30		25712	ST-435t	† Shunt Field Coil With 4000Ω 2watt Resistor.
47	Cone Dia. 7 3/8"	V.C. Dia. 3 1/4"		NOT READILY REPLACIBLE UNIT		USE COMPLETE SPEAKER UNIT

R F COILS

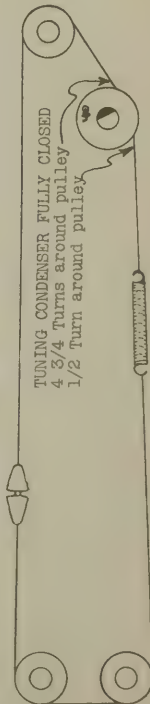
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	CORONADO PART No.	MEISSNER PART No.	
48	Loop Ant.	0Ω	.7Ω	25692		
49	RF Coil	72Ω	6Ω	25597	14-7558	
50	Osc. Coil		6Ω	25724	14-1040	
51	Input IF	28.8Ω	28.5Ω	25715	16-6658	
52	Output IF	32Ω		25714	16-8670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	CORONADO PART No.	
53	Bayonet	6-8	0.15	BROWN	25576	Type 47
54	Bayonet	6-8	0.15	BROWN	25576	Type 47

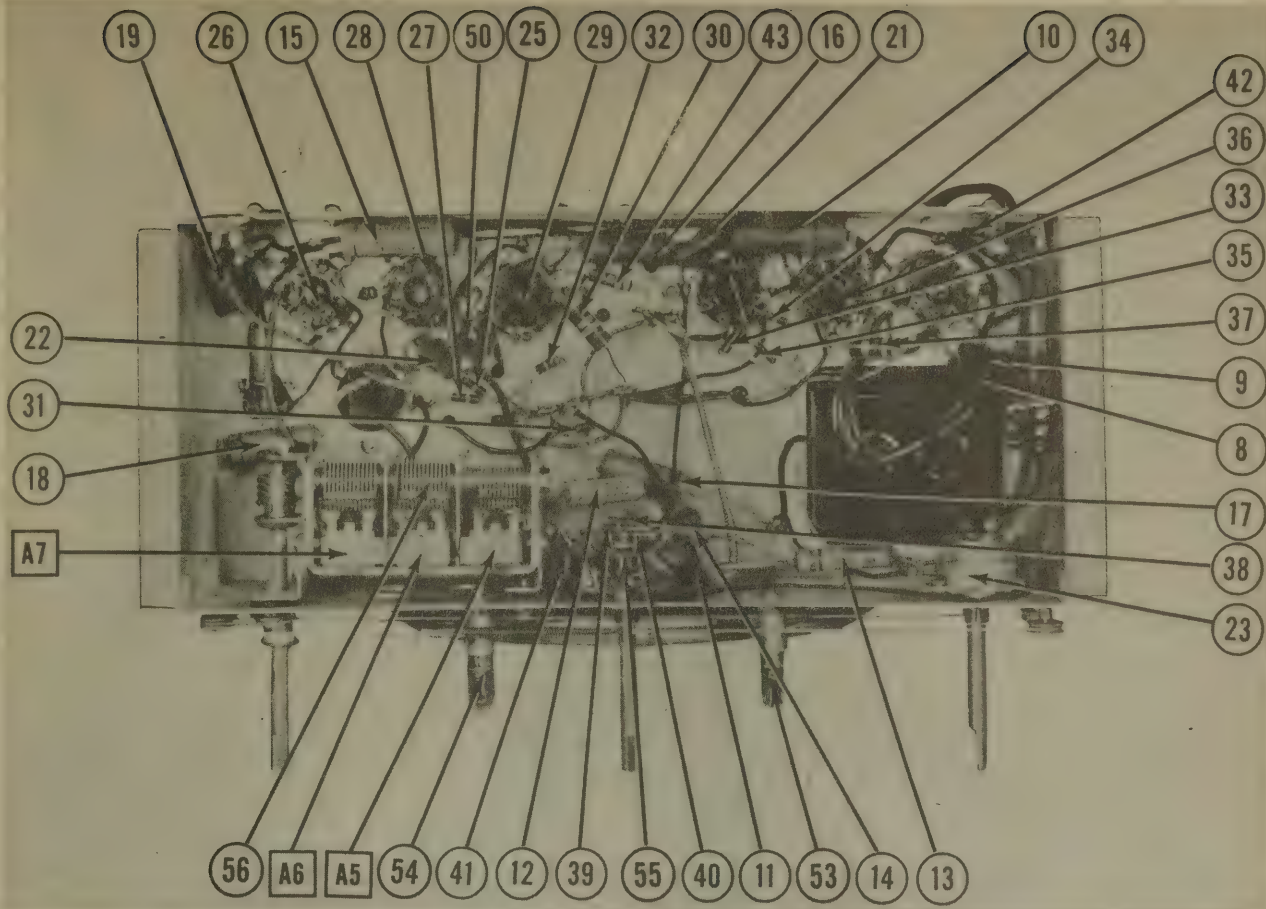
MISCELLANEOUS

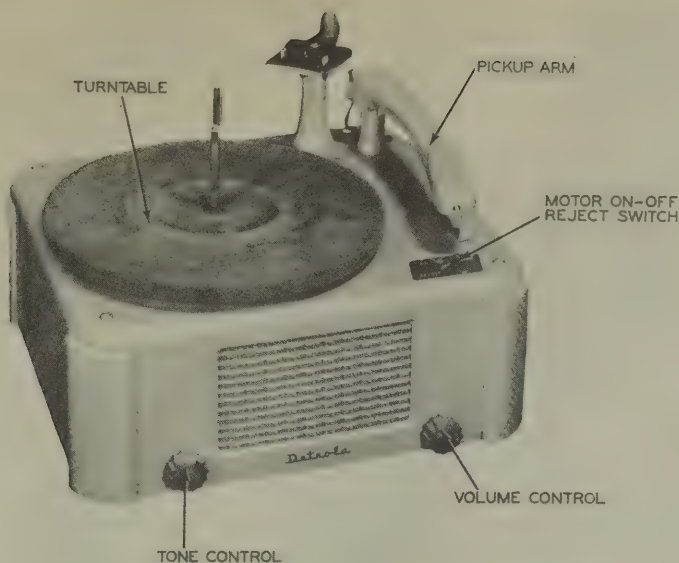
ITEM No.	PART NAME	CORONADO PART No.	NOTES
55	Radio-Tone Sw.	25562	
56	3-Sang Var. Cap	25592	Trimmers Included
	Dial Pointer	25578	



DIAL CORD DRIVE

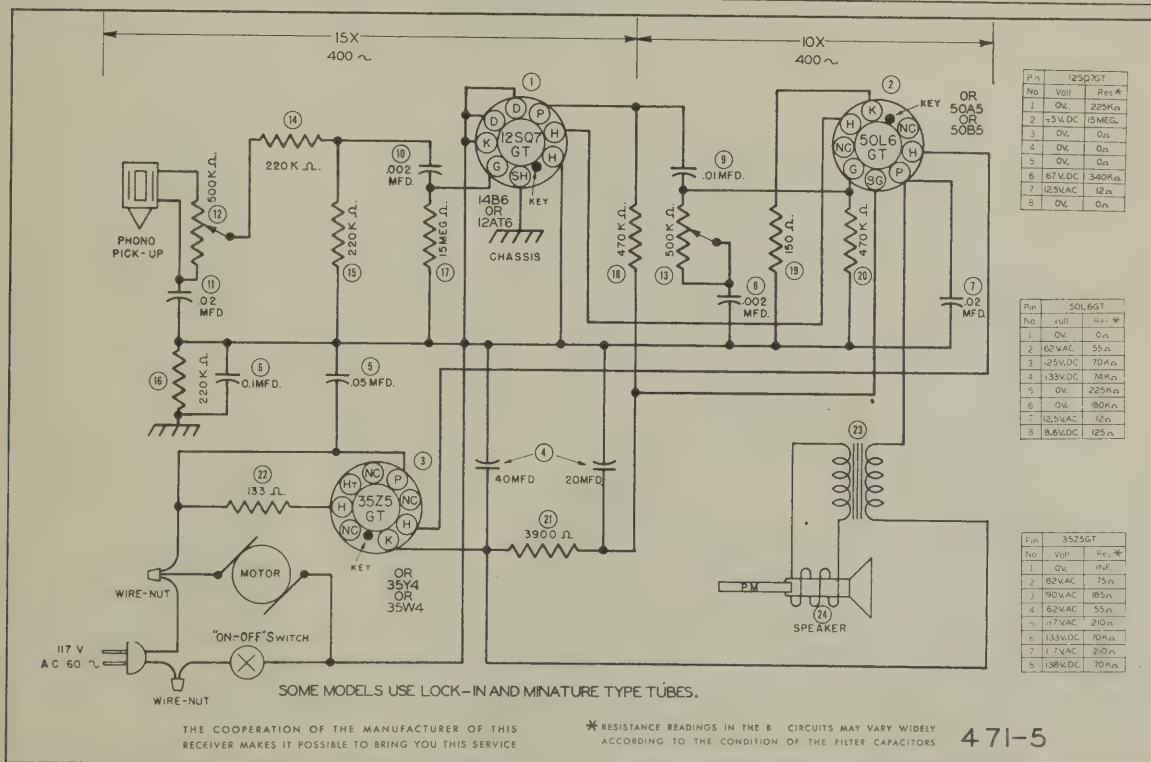
CHASSIS—BOTTOM VIEW





DETROLA MODEL 626 SERIES

TRADE NAME Detrola, Model 626 Series
MANUFACTURER International Detrola Corp., 1501 Beard St., Detroit, Michigan
TYPE-SET AC Operated Record Player with 3 Tube Amplifier and Speaker
TUBES Types, 12AT6 AF Amp. or 12SQ7GT or 14B6, 50B5 Power Output or 50L6GT or 50A5, 35W4 Rectifier or 35Z5GT or 35Y4
POWER SUPPLY 117 volts AC **RATING** - .260 Amp. @ 117 Volts AC



1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.

4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of +10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		DETROLA PART No.	STANDARD REPLACEMENT		
1A	AF Amp.	12SQ7GT	12SQ7GT	8N	Octal
B	AF Amp.	14B6	14B6	8W	Lock-In
C	AF Amp.	12AT6	12AT6	7BT	Miniature
2A	Power Output	50L6GT	50L6GT	7AC	
B	Power Output	50A5	50A5	6AA	
C	Power Output	50B5	50B5	7B7	
3A	Rectifier	35Z5GT	35Z5GT	6AD	
B	Rectifier	35Y4	35Y4	5AL	
C	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		DETROLA PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
4A	40	B-9564-1	M-40+20-150	TA-240	FPSA150-40-40	F1 Filter-Red *
B	20					
4A	40					
B	20					
5	.05	A-8948	† DY-40+20-150	EL-24	AF84D20a †	FP306 † Filter -Blue †
6	.1					
7	.02					
8	.002					
9	.01					
10	.002					
11	.02					

*Used in Model 626-20-1169B. †Used in Model 626-12-1164. ‡Do not use bypass section.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		DETROLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
12A	500KΩ	554466-1	NR48	D13-133	M-60-2	Volume Control
13A	500KΩ	Not Req.	NR48	D13-133	Not Req.	Attach to 12A per instructions
B	Shaft	Not Req.	Not Req.	D13-133	Not Req.	Tone Control

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		DETROLA PART No.	IRC PART No.	
14	220KΩ	BR17B224	ETS-220K	Red-Red-Yl. Photo Input Voltage Divider
15	220KΩ	BR17B224	ETS-220K	Red-Red-Yl. " "
16	220KΩ	BR17B224	ETS-220K	Red-Red-Yl. Line Isolating
17	15 Meg.	BR17B156	ETS-15 Meg.	Br.-Grn.-Blue 1st AF Grid
18	470KΩ	BR17B474	ETS-470K	Yl.-Yl.-Yl. 1st AF Plate Load
19	150Ω	BR16E151	BM-1-150	Br.-Grn.-Br. Output Cathode
20	470KΩ	BR17B474	ETS-470K	Yl.-Yl.-Yl. Output Grid
21	3900Ω	BR16C392	ETS-3900	Or.-White-Red Filter - See Note 1
22	1.5KΩ	A-9526	AB-150	Line Dropping

Note 1 - Some models use a 1000Ω resistor in this application.

TRANSFORMER (OUTPUT)

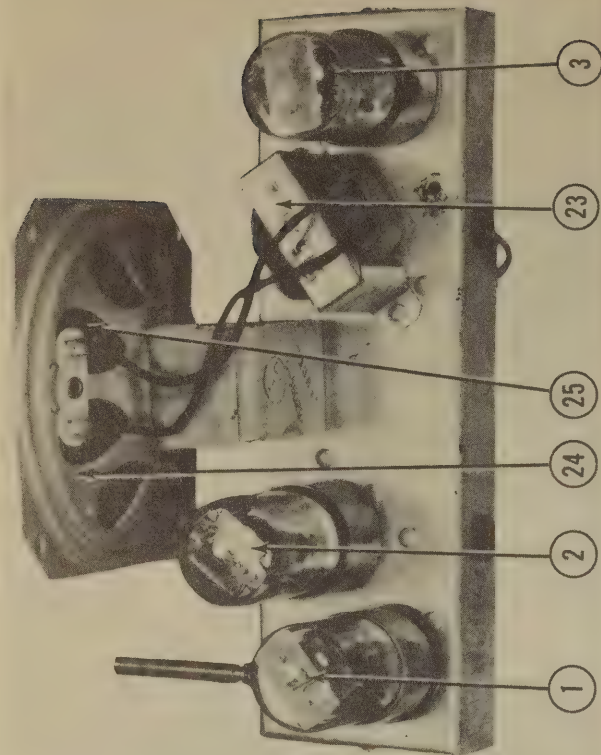
ITEM No.	RATING	REPLACEMENT DATA		INSTALLATION NOTES
		DETROLA PART No.	STANCOR PART No.	
23	2500Ω 3.4Ω 180Ω .8Ω	B-51578-2	A-3876	

SPEAKER

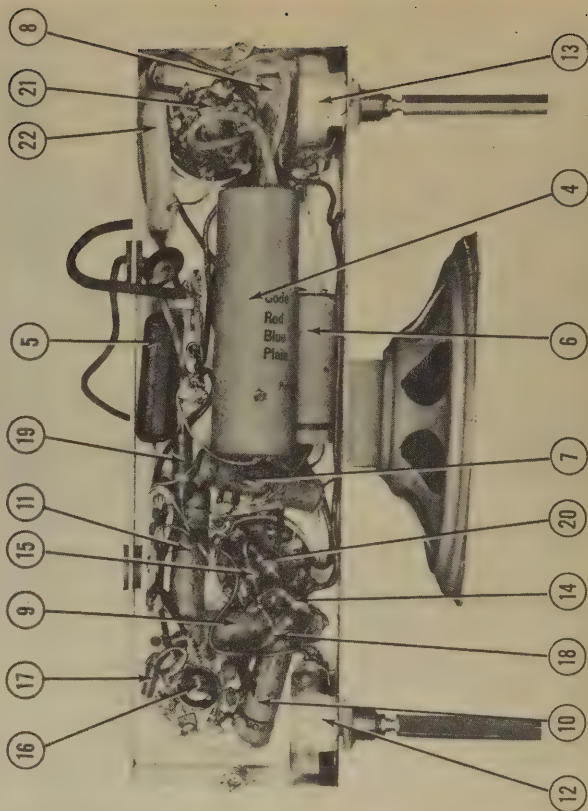
ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		DETROLA PART No.	JENSEN PART No.	
24	FTD 4" PM		ST-113	
	VC IMP.		Mod. P4-X	
25	4" 1/2"			

NOT READILY REPLACIBLE-USE COMPLETE SPEAKER UNIT.

CHASSIS--TOP VIEW



CHASSIS--BOTTOM VIEW



EMERSON
MODELS 531, 532, 533



TONE CONTROL VOLUME CONTROL ON-OFF SWITCH TUNING CONTROL

EMERSON MODEL 532

TRADE NAME	Emerson Models 531, 532, 533
MANUFACTURER	Emerson Radio & Phono. Corp., 111 8th Ave., New York, N.Y.
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FIVE)	Types, 1T4 RF Amp., 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3Q4 Power Output.
POWER SUPPLY	1.5 Volt "A" Supply & 90 Volt "B" Supply in Battery Pack Form (Eveready No. 758 or equiv.)
RATING	325 MA @ 1.6V DC & 14.7 MA @ 88V DC
TUNING RANGE—BROADCAST	530-1625KC

ALIGNMENT INSTRUCTIONS

To set pointer, turn variable fully closed and set pointer at the last reference mark at the left end of the dial backplate. Set volume control at maximum volume and keep input from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to sta- tor of rear sec- tion of variable. Low side to chassis.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MFD	High side to ext. ant. lead. Low side to ground lead.	"	Variable fully closed	"	A5	Adjust for minimum output.
200 MFD	"	1425KC	2nd mark from right end of dial back plate	"	A6	Adjust for maximum output.
200 MFD	"	"	Tune for maxi- mum output.	"	A7	" " " "

EMERSON
MODELS 531, 532, 533

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PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

TUBES

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		EMERSON PART No.	STANDARD REPLACEMENT	
1	RF Amplifier	1T4	1T4	
2	Converter	1R5	1R5	
3	IF Amplifier	1T4	1T4	
4	Det.-AVC-AF	1S5	1S5	
5	Power Output	3Q4	3Q4	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

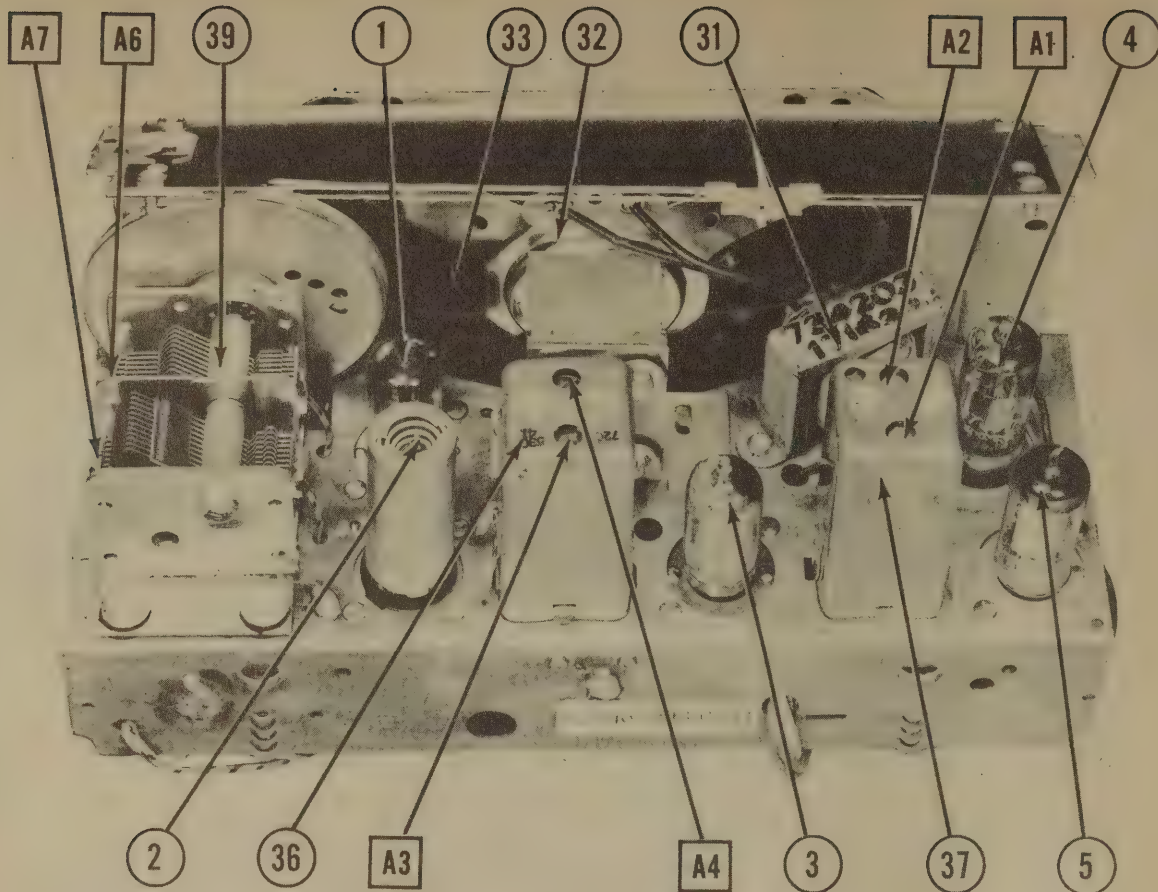
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		EMERSON PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
6	16		M-18-150	UT-161	PRS150-16	
7	150		S-6-001	TC-21	684-001	Pwr. Supp. Bypass
8	.001		S-4-02	TC-12	484-02	Output Plate Bypass
9	.02		S-4-02	TC-12	484-02	Audio Coupling
10	.002		S-6-002	TC-22	684-002	Audio Screen Bypass
11	.1		S-4-1	TC-1	484-1	Audio Coupling
12	.02		S-4-02	TC-12	484-02	AVC Filter
13	.02		S-4-02	TC-12	484-02	Conv. Screen Bypass
14	.001		S-6-001	TC-21	684-001	Screen Bypass
15	50		NO-6-45	1FM-45	1468-00005	Ant. Coupling
16	220		NO-8-32	1FM-32	1468-0002	Tone Compensation
17	110		NO-8-31	1FM-31	1468-0001	Audio Plate Bypass
18	220		NO-5-32	1FM-32	1468-0002	1F Bypass Vol. Cont.

CONTROLS

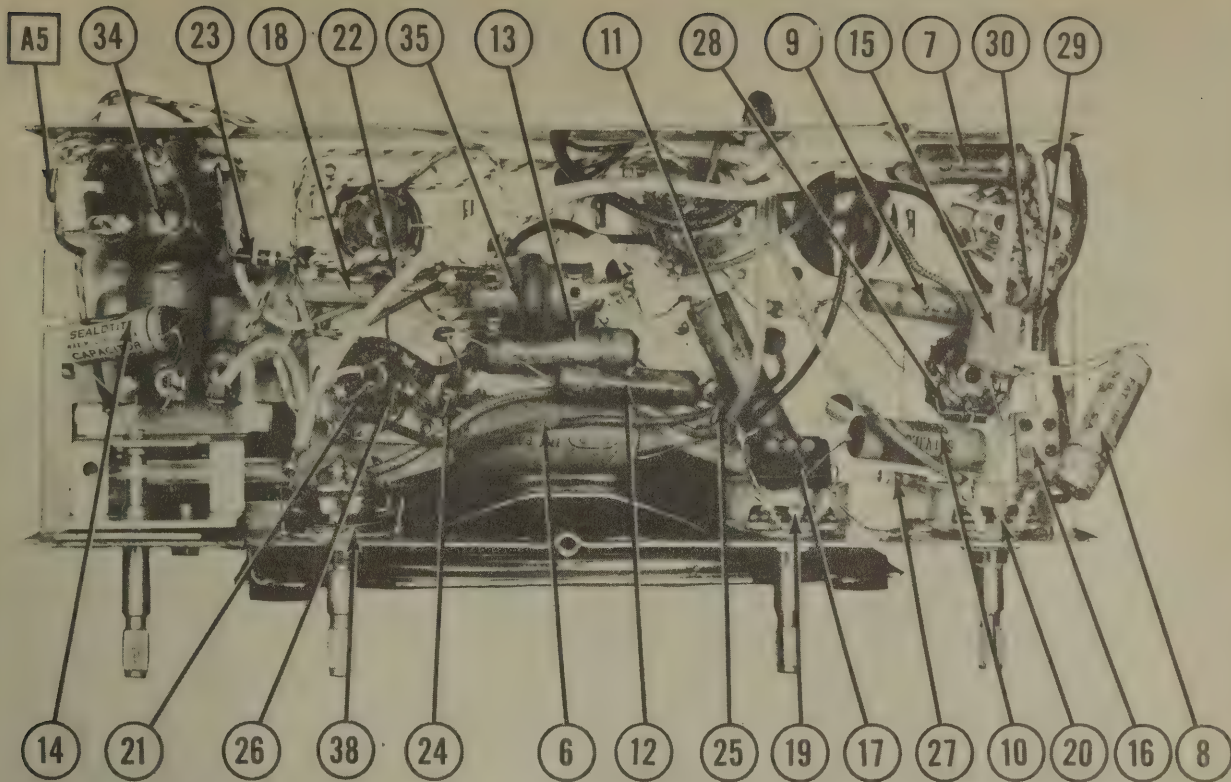
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		EMERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
19A	500M		380180	D13-133	AM-60-Z	Volume Control
19B	500M		380180	D13-133	KSS-3	Attach to 19A per instructions.
20A	500M		380280	D13-133	AM-60-Z	Tone Control
20B	500M		380280	D13-133	KSS-3	Attach to 20A per instructions.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		EMERSON PART No.	MALLORY PART No.	IRC PART No.	
21	100K		BTS-10K	BTS-10K	Br.-Blk.-Or. RF Plate Load
22	100K		BTS-10K	BTS-10K	Br.-Blk.-Yl. Oscillator Grid
23	470K		BTS-470K	BTS-470K	Yl.-Vi.-Yl. Converter Grid
24	10K		BTS-10K	BTS-10K	Br.-Blk.-Or. Converter Screen Dropping
25	3.3 Meg.		BTS-3.3 Meg.	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
26	15K		BTS-15K	BTS-15K	Br.-Grn.-Or. Screen Dropping
27	470K		BTS-470	BTS-470	Yl.-Vi.-Br. Bias
28	10 Meg.		BTS-10 Meg.	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
29	1 Meg.		BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
30	3.3 Meg.		BTS-3.3 Meg.	BTS-3.3 Meg.	Or.-Or.-Grn. AF Screen Dropping



CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	DC RES.	THOR'D N	EMERSON PART No.	STANCOR PART No.	THOR'D N	
31	100-004.68	470Ω	.5Ω		724203	A-3878	T22547	

SPEAKER

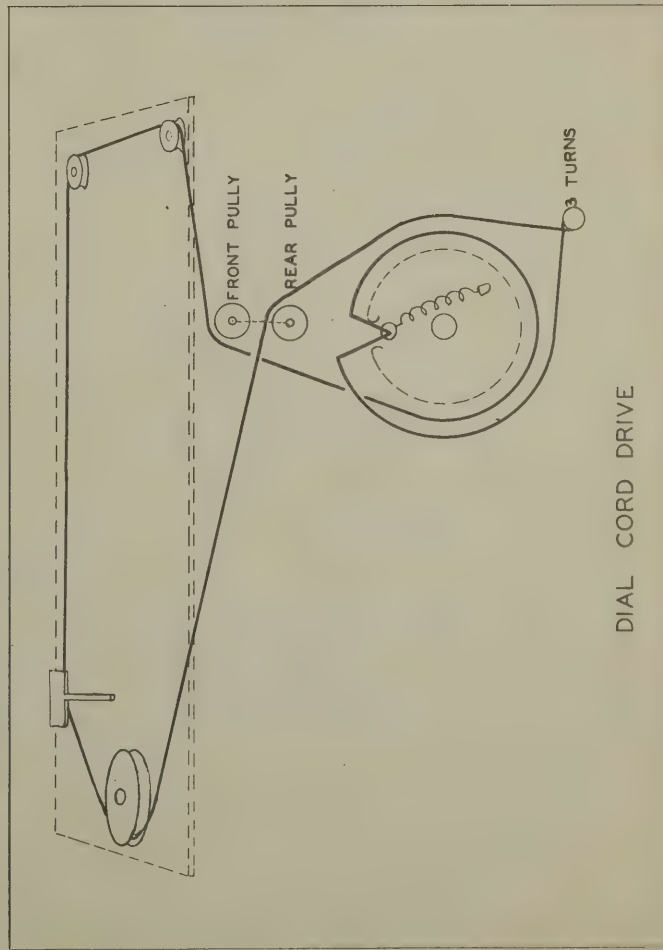
ITEM No.	RATINGS				REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	VC DIA.	VC DIA.	EMERSON PART No.	JENSEN PART No.	THOR'D N	
32	PM	4.8Ω			180003			
33	COIL DIA.	1/2"						NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT

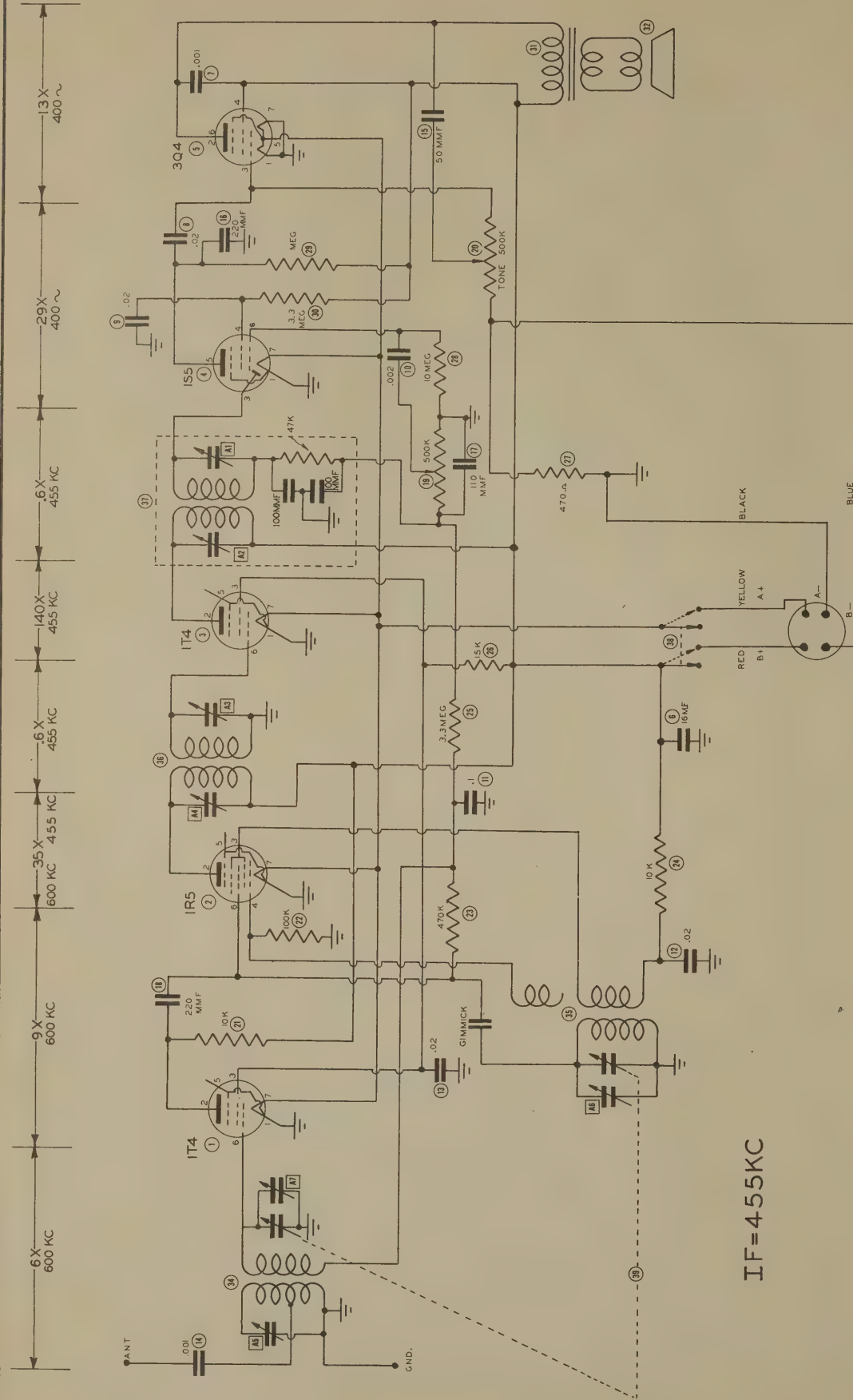
R F COILS

ITEM No.	USE	DC RES.				REPLACEMENT DATA			INSTALLATION NOTES
		PRI.	SEC.	SEC.	SEC.	EMERSON PART No.	WEISSNER PART No.	THOR'D N	
34	Ant. Coil	100Ω	50						
35	Gr. Coil	2.5Ω	0.5Ω						
36	Input IF	56Ω	22.5Ω			720530	16-6666		
37	Output IF	52Ω				720531	16-6670		

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
38	Switch		On-Off
39	Tuning Cap.		2 Gang Var. Cap.





IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1T4	ON	6VDC	62VDC	88VDC	ON	ON	1.6VDC
2	1R5	ON	88VDC	63VDC	ON	ON	ON	1.6VDC
3	1T4	ON	88VDC	62VDC	88VDC	ON	ON	1.6VDC
4	1S5	ON	ON	17VDC	14VDC	ON	ON	1.6VDC
5	3Q4	ON	87VDC	3.2VDC	88VDC	1.6VDC	87VDC	ON

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1T4	*	90K Ω	80K Ω	80K Ω	4MEG Ω	*	*
2	1R5	*	80K Ω	90K Ω	120K Ω	4MEG Ω	*	*
3	1T4	*	80K Ω	80K Ω	80K Ω	20 Ω	*	*
4	1S5	*	INE	570K Ω	3MEG Ω	950K Ω	8MEG Ω	*
5	3Q4	*	80K Ω	40K Ω	80K Ω	80K Ω	*	*

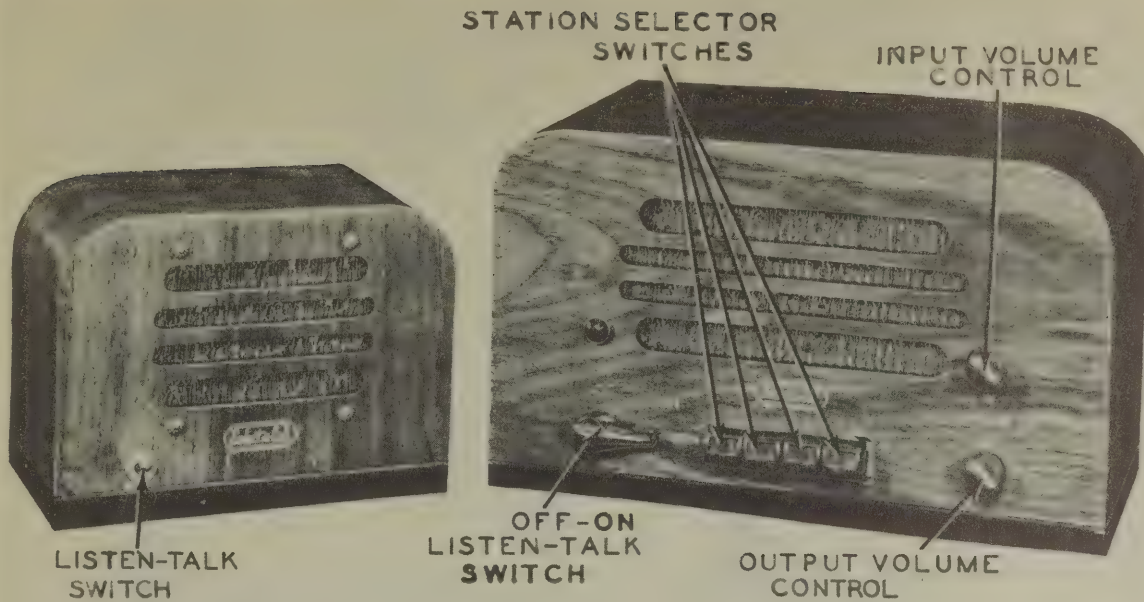
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

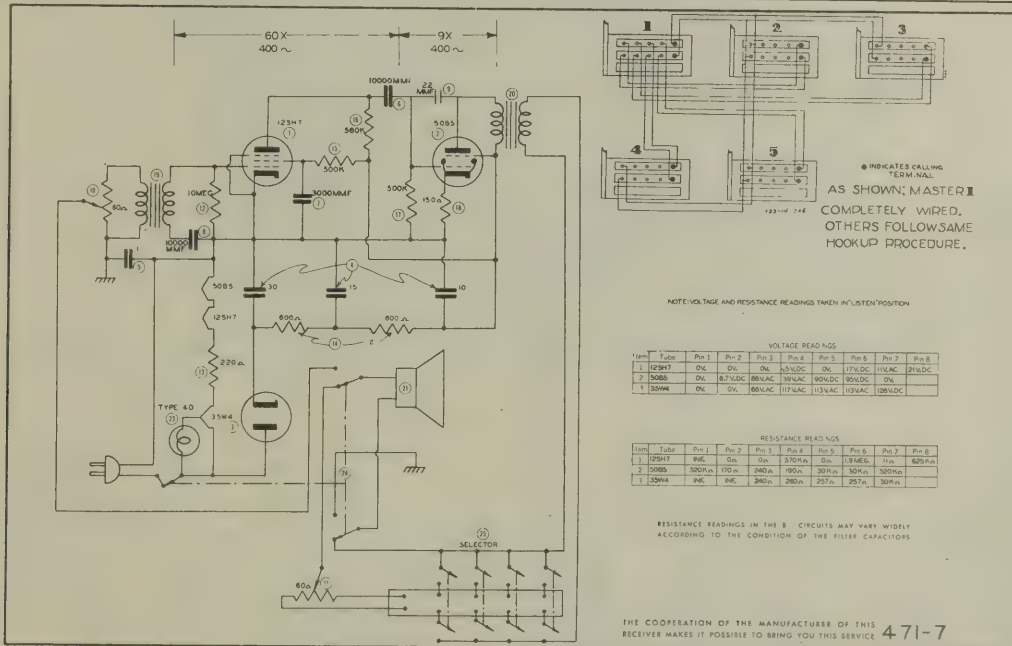
471-6

- The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting to chassis.
- 1 - DC Voltage measurements are at 20,000 ohms per volt.
 - 2 - Socket connections are shown as bottom views.
 - 3 - Measured values are from socket pin to common negative.
 - 4 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
 - 5 - Volume control at maximum, no signal applied for voltage measurements.



FEDERAL (SELECT-A-CALL) MODEL 135

TRADE NAME Federal Model 135 Select-A-Call
MANUFACTURER Federal Mfg. & Electronic Co., 5914 N. Western Ave., Chicago 45, Ill.
TYPE SET AC - DC Operated Inter-Communication System
TUBES (THREE) Types, 12SH7 Audio Amp., 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY 110-120 Volts AC-DC **RATING** .190 Amps. @ 117V AC



1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000-ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		FEDERAL PART No.	STANDARD REPLACEMENT		
1	Audio Amp.	12SH7	12SH7	8BK	
2	Power Output	50B5	50B5	7BZ	
3	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		FEDERAL PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
4A	CAP. VOLT		DY-3X20-450	EL-432	AF444J	UF6CJ45
B	30					
C	15					
5	10					
6	10000	S-6-1	TC-1	684-1	D76P1	TP418
7	3000	S-4-01	TC-11	1467-01	D74S1	TP421
8	10000	MW-5-23	LFM-23	1468-003	1W5D3	MC461
9	22	S-4-01	TC-11	1467-01	D74S1	TP421
		MO-5-425	MS-42	1468-000035	5W5Q2	MC220

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		FEDERAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
10&11A	RESIST. WATTS					
10&11B	60Ω	630411	V	M-60	58-60	Input & Output Vol. Cont.-Later Prod.
	20Ω		T	M-20	58-20	-Early Prod.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		FEDERAL PART No.	IRC PART No.	
12A	10 Meg.			
B	560KΩ	BTS-10 Meg.	BTS-10 Meg.	Br.-Blk.-Blue AF Amplifier Grid-Used in early prod
13	220Ω	AB-250T	AB-250T	Gm.-Blue-Yl. AF Amplifier Grid-Used in later prod
14	1000Ω	AB-1000*	AB-1000*	Line Dropping
15A	500KΩ	BTS-470K	BTS-470K	Filter-See Note 1
B	2 Meg	BTS-2.2 Meg.	BTS-2.2 Meg.	Gm.-Blk.-Yl. AF Screen Dropping-Used in early prod
16	560KΩ	BTS-560K	BTS-560K	Red-Blk.-Gm. " AF Plate Load
17	560KΩ	BTS-560K	BTS-560K	Gm.-Blue-Yl. Output Grid
18	200Ω	BW-2-220	BW-2-220	Red-Blk.-Br. Output Cathode

Note 1 - Some models use two 600Ω resistors in this application.
* - Set slider at center. † - Set slider at 220Ω from one end.

TRANSFORMER (INPUT)

ITEM No.	RATING	REPLACEMENT DATA		INSTALLATION NOTES
		FEDERAL PART No.	THORNDARSON PART No.	
19	RES. PRI. SEC. TURNS RATIO			
	1-3Ω 2700Ω 1 to 141		A-4743†	†Drill new mounting holes.

TRANSFORMER (OUTPUT)

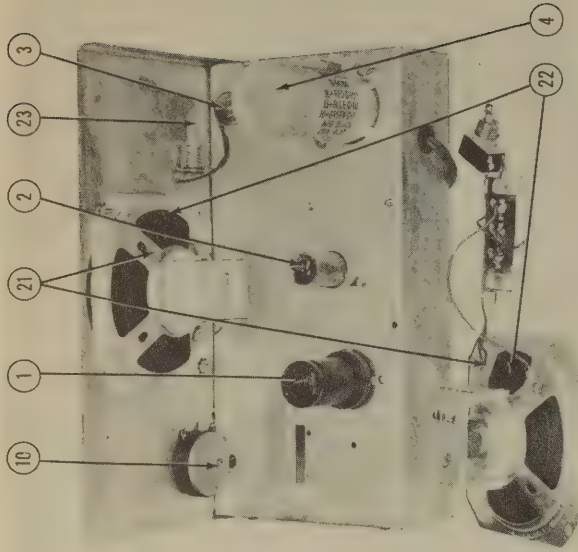
ITEM No.	RATING	REPLACEMENT DATA		INSTALLATION NOTES
		FEDERAL PART No.	THORNDARSON PART No.	
20	IMPEDANCE PRI. SEC. DC RES.			
	2000Ω 2.9Ω 180Ω .6Ω		A-3876	T22845

SPEAKER

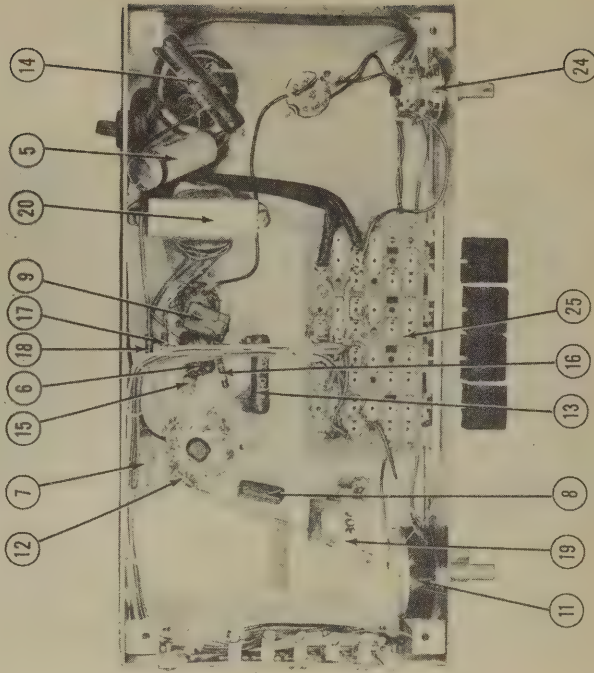
ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		FEDERAL PART No.	JENSEN PART No.	
21	FIELD PM 2-9Ω	42P12	SP-113	
22	CORE DIA. NO DIA. 4" 1/2"		Mod. P4-X	

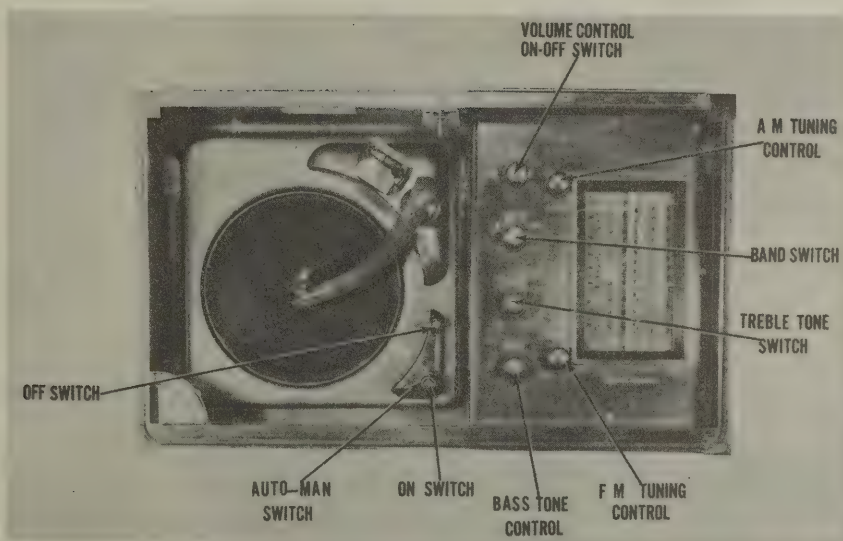
NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





FREED-EISEMANN, MODEL NO. 46

TRADE NAME	Freed-Eisemann Model No. 46		
MANUFACTURER	Freed Radio Corp., 200 Hudson Street, New York, N.Y.		
TYPE SET	AC Operated Multiband Superheterodyne Receiver for AM & FM Operation with Automatic Phonograph.		
TUBES (TWENTY)	Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SL7GT Det.-AVC-AF, 6J5GT Bass Amp., 6J5GT AF Amp.-Phase Inv., (2) 6Y6GT Power Output, 5U4G Rectifier, 6AG5 RF Amp., 6AG5 1st Converter, 6AG5 HF Osc., 6SA7 SW Osc.-2nd Converter, 6SG7 1st IF Amp., 6SG7 2nd IF Amp., 6SH7 1st Limiter, 6SH7 2nd Limiter, 6H6 Discriminator, 6J5GT Noise Suppressor, 6U5 Tuning Indicator.		
POWER SUPPLY	105-125 Volts AC		
RATING	1.3 Amp. @ 117 Volts AC		
FREQUENCY RANGES	STANDARD BROADCAST	540 - 1600KC	
	SHORT WAVE (BAND #1)	12 - 17.5MC	
	SHORT WAVE (BAND #2)	6.2 - 9.9 MC	
	FREQUENCY MODULATION	88 - 108 MC	

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PARTS LIST AND DESCRIPTIONS
TUBES

PARTS LIST AND DESCRIPTIONS (Continued)
CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		FREED- EISEMANN PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	9R	
4	Det.-AVC-AF	6SL7GT	6SL7GT	9BD	
5	Bass Amp.	6J5GT	6J5GT	6Q	
6	AF Amp.-Phase Inv.	6J5GT	6J5GT	6Q	
7	Power Output	6Y6G	6Y6G	7AC	
8	Rectifier	5U4G	5U4G	7AT	
9	Rectifier	6AG5	6AG5	5T	
10	RF Amp.	6AG5	6AG5	7BD	
11	1st Converter	6AG5	6AG5	7BD	
12	HF Osc.	6AG5	6AG5	7BD	
13	6.4 MC Osc.-2nd Converter	6SA7	6SA7	8R	
14	1st IF Amp.	6SG7	6SG7	8BK	
15	2nd IF Amp.	6SG7	6SG7	8BK	
16	1st Limiter	6SH7	6SH7	8BK	
17	2nd Limiter	6SH7	6SH7	8BK	
18	Discriminator	6H6	6H6	7Q	
19	Noise Suppressor	6J5GT	6J5GT	6Q	
20	Tuning Indicator	6U5	6U5	6R	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA		CORNEIL- DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
		FREED- EISEMANN PART No.	SOLAR PART No.			
21	8	OE-A2	UT-8	PR3450-B	TP426	Filter
22	40		UL-240	PR4444A*	TP236	Filter
23	40		UT-8	PR3450-B	TC-71	Filter
24	40		UT-8	PR3450-B	TC-71	Filter
25	25		UT-8	PR3450-B	TC-36	Output Cath. Bypass
26	25		UT-8	PR3450-B	TC-36	Output Cath. Bypass
27	25		UT-8	PR3450-B	TC-36	Filter
28	25		UT-8	PR3450-B	TC-36	1st Audio Cath. Bypass
29	25		UT-8	PR3450-B	TC-36	Line Filter
30	25		UT-8	PR3450-B	TC-36	Speaker Crossover
31	25		UT-8	PR3450-B	TC-36	Audio Coupling
32	25		UT-8	PR3450-B	TC-36	Audio Coupling
33	25		UT-8	PR3450-B	TC-36	Audio Coupling
34	25		UT-8	PR3450-B	TC-36	Audio Coupling
35	25		UT-8	PR3450-B	TC-36	Audio Coupling
36	25		UT-8	PR3450-B	TC-36	Audio Coupling
37	25		UT-8	PR3450-B	TC-36	Audio Coupling
38	25		UT-8	PR3450-B	TC-36	Audio Coupling
39	25		UT-8	PR3450-B	TC-36	Audio Coupling
40	25		UT-8	PR3450-B	TC-36	Audio Coupling
41	25		UT-8	PR3450-B	TC-36	Audio Coupling
42	25		UT-8	PR3450-B	TC-36	Audio Coupling
43	25		UT-8	PR3450-B	TC-36	Audio Coupling
44	25		UT-8	PR3450-B	TC-36	Audio Coupling
45	25		UT-8	PR3450-B	TC-36	Audio Coupling
46	25		UT-8	PR3450-B	TC-36	Audio Coupling
47	25		UT-8	PR3450-B	TC-36	Audio Coupling
48	25		UT-8	PR3450-B	TC-36	Audio Coupling
49	25		UT-8	PR3450-B	TC-36	Audio Coupling
50	25		UT-8	PR3450-B	TC-36	Audio Coupling
51	25		UT-8	PR3450-B	TC-36	Audio Coupling
52	25		UT-8	PR3450-B	TC-36	Audio Coupling
53	25		UT-8	PR3450-B	TC-36	Audio Coupling
54	25		UT-8	PR3450-B	TC-36	Audio Coupling
55	25		UT-8	PR3450-B	TC-36	Audio Coupling
56	25		UT-8	PR3450-B	TC-36	Audio Coupling
57	25		UT-8	PR3450-B	TC-36	Audio Coupling
58	25		UT-8	PR3450-B	TC-36	Audio Coupling
59	25		UT-8	PR3450-B	TC-36	Audio Coupling

* Parallel 2-20 MFD. sections to obtain 40 MFD

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA		CORNEIL- DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
		FREED- EISEMANN PART No.	SOLAR PART No.			
97A	500KΩ	1	TV231	1M-133X	1M-133X	Volume Control.
98A	10KΩ	1	TV231	1M-133X	1M-133X	Attach to 97A per Instructions
99A	10KΩ	1	TV231	1M-133X	1M-133X	Attach to 98A per Instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		CORNEIL- DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
		FREED- EISEMANN PART No.	SOLAR PART No.			
99	200Ω	1	TV231	1M-133X	1M-133X	Volume Control.
100	68KΩ	1	TV231	1M-133X	1M-133X	Attach to 97A per Instructions
101	10KΩ	1	TV231	1M-133X	1M-133X	Attach to 98A per Instructions
102	10KΩ	1	TV231	1M-133X	1M-133X	Attach to 98A per Instructions
103	270KΩ	1	TV231	1M-133X	1M-133X	Attach to 98A per Instructions
104	100KΩ	1	TV231	1M-133X	1M-133X	Attach to 98A per Instructions
105	30KΩ	1	TV231	1M-133X	1M-133X	Attach to 98A per Instructions
106	30KΩ	1	TV231	1M-133X	1M-133X	Attach to 98A per Instructions
107	22KΩ	1	TV231	1M-133X	1M-133X	Attach to 98A per Instructions
108	51KΩ	1	TV231	1M-133X	1M-133X	Attach to 98A per Instructions

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	FREED-EISEMANN PART No.	IRC PART No.	
109	51K	1/2	BTS-47K	BTS-47K	Gm.-Br.-Or. 10-7 MC IF Transformer Sec. Shunt
110	15K	1/2	BTS-2-15K	BTS-2-15K	Br.-Gm.-Or. FM 2nd Converter Screen Drooping
111	360K	1/2	BTS-3300	BTS-3300	Or.-Blue-Red FM 2nd Converter Screen Drooping
112	100K	1/2	BTS-100K	BTS-100K	Br.-Blk.-Yl. FM 1st IF Grid
113	50K	1/2	BTS-47K	BTS-47K	Gm.-Blk.-Br. FM 1st IF Cathode
114	200K	1/2	BW-2-220	BW-2-220	Red-Blk.-Br. FM 1st IF Transformer Sec. Shunt *
115	39K	1/2	BTS-39K	BTS-39K	Or.-Blue-Red FM 1st IF Screen Drooping
116	360K	1/2	BTS-3300	BTS-3300	Or.-White-Or. FM 1st IF Screen Drooping
117	51K	1/2	BTS-47K	BTS-47K	Gm.-Br.-Or. 2nd 4-3MC IF Transformer Pri. Shunt
118	100K	1/2	BTS-100K	BTS-100K	Br.-Blk.-Yl. FM 2nd IF Grid
119	50K	1/2	BW-2-390	BW-2-390	Gm.-Blk.-Or. 2nd 4-3MC IF Transformer Sec. Shunt *
120	39K	1/2	BTS-39K	BTS-39K	Or.-White-Br. FM 2nd IF Cathode
121	39K	1/2	BTS-39K	BTS-39K	Or.-White-Or. FM 2nd IF Screen Drooping
122	360K	1/2	BTS-3300	BTS-3300	Or.-Blue-Red FM 2nd IF Plate Drooping
123	51K	1/2	BTS-47K	BTS-47K	Gm.-Br.-Or. FM 1st Limiter Plate Load
124	100K	1/2	BTS-100K	BTS-100K	Red-Yl.-Or. FM 2nd Limiter Grid
125	24K	1/2	BTS-22K	BTS-22K	Red-Red-Or. Bleeder
126	22K	1/2	BTS-22K	BTS-22K	Or.-White-Or. Screen Drooping
127	39K	1/2	BTA-39K	BTA-39K	Br.-Blk.-Yl. FM 2nd Limiter Plate Drooping
128	100K	1/2	BTS-100K	BTS-100K	Br.-Blk.-Yl. Discriminator Diode Load
129	100K	1/2	BTS-100K	BTS-100K	V1.-Gm.-Or. Discriminator Network
130	75K	1/2	BTS-82K	BTS-82K	Br.-Blk.-Yl. Discriminator Diode Load
131	100K	1/2	BTS-100K	BTS-100K	Br.-Blk.-Gm. Series Tuning Eye
132	1 Meg.	1/2	BTS-1 Meg.	BTS-1 Meg.	Gm.-Br.-Yl. Audio Voltage Divider *
133	510K	1/2	BTS-470K	BTS-470K	Red-Red-Gm.
134	2.2 Meg.	1/2	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Yl. Noise Limiter Grid - See Note 1
135	220K	1/2	BTS-220K	BTS-220K	Br.-Blk.-Yl. AVC Network
136	100K	1/2	BTS-100K	BTS-100K	Br.-Blk.-Yl. AVC Network
137	100K	1/2	BTS-100K	BTS-100K	Or.-White-Br. AM-RF Cathode
138	390K	1/2	BW-2-390	BW-2-390	Or.-Blue-Red AM-RF Plate Drooping †
139	360K	1/2	BTS-3300	BTS-3300	Br.-Blk.-Yl. AVC Network
140	100K	1/2	BTS-100K	BTS-100K	Red-Red-Or. AM Oscillator Grid
141	22K	1/2	BTS-22K	BTS-22K	Or.-Blue-Red AM Oscillator Plate Drooping
142	360K	1/2	BTS-3300	BTS-3300	Gm.-Br.-Br. 1st AM-SW Oscillator Coil Shunt
143	51K	1/2	BTS-47K	BTS-47K	Red-Blk.-Br. 2nd "
144	200K	1/2	BW-2-220	BW-2-220	Gm.-Br.-Yl. AVC Network
145	100K	1/2	BTS-100K	BTS-100K	Er.-Blk.-Yl. AVC Network
146	100K	1/2	BTS-100K	BTS-100K	Er.-Blk.-Red Parasitic Suppressor
147	100K	1/2	BTS-100K	BTS-100K	Or.-Blk.-Red AM-IF Cathode
148	360K	1/2	BTS-3300	BTS-3300	Or.-Blue-Red AM-IF Screen Drooping
149	1 Meg.	1/2	BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Gm. AVC Network
150	10K	1/2	ABA-10,000	ABA-10,000	Voltage Divider-See Note 3
151	270K	1/2	BTS-270K	BTS-270K	Red-Vl.-Yl. Diode Load
152	51K	1/2	BTS-47K	BTS-47K	Gm.-Br.-Or. "
153	20K	1/2	BW-2-22	BW-2-22	Red-Blk.-Blk. 1st AF Cathode
154	360K	1/2	BTS-3300	BTS-3300	Or.-Blue-Red 1st AF Cathode
155	150K	1/2	BTS-150K	BTS-150K	Er.-Gm.-Red Feedback
156	220K	1/2	BTS-220K	BTS-220K	Red-Red-Yl. Pass Amplifier Grid
157	51K	1/2	BTS-47K	BTS-47K	Gm.-Br.-Red Pass Amplifier Cathode
158	51K	1/2	BTS-47K	BTS-47K	Gm.-Br.-Or. Tone Compensation
159	68K	1/2	BTS-68K	BTS-68K	Blue-Gray-Or.
160	1 Meg.	1/2	BTS-1 Meg.	BTS-1 Meg.	Er.-Blk.-Gm. Phono Shunt
161	10K	1/2	BTS-10K	BTS-10K	Er.-Blk.-Or. Bass Amplifier Plate Drooping
162	510K	1/2	BTS-470K	BTS-470K	Gm.-Br.-Red Phase Inverter Cathode
163	220K	1/2	BTS-220K	BTS-220K	Red-Red-Yl. 1st AF Plate Load
164	100K	1/2	BTS-100K	BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load
165	22K	1/2	BTS-22K	BTS-22K	Red-Red-Or. Voltage Drooping
166	220K	1/2	BTS-220K	BTS-220K	Red-Red-Yl. Output Grid
167	220K	1/2	BTS-220K	BTS-220K	Red-Red-Yl.
168	18K	1/2	BTS-18K	BTS-18K	Br.-Gray-Or. Phase Inverter Grid
169	240K	1/2	BTA-240K	BTA-240K	Red-Yl.-Red Tone Compensation
170	240K	1/2	BTA-240K	BTA-240K	Red-Yl.-Red
171	130K	1/2	ABA-130K	ABA-130K	Bias - See Note 2
172	3K	1/2	AB-3000	AB-3000	Voltage Divider
173	110K	1/2	AB-110K	AB-110K	" "
174	5K	1/2	BTS-5K	BTS-5K	Series Pilot Light *
214	240K	1/2	BTS-220K	BTS-220K	Red-Yl.-Yl. 615 NL Plate Load

Note 1 - Some models use a 1 Meg. resistor in this application.

Note 2 - Set slider at 130K from one end. *

Note 3 - Set slider at center. †

- Some models use a 510K resistor in this application. Inc.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	SEC. 3	FREED-EISEMANN PART No.	THORDARSON PART No.
174	117V AC @ 1.3A	640V CT @ 160A	15V AC @ 2.8A	6.4V AC @ 7.8A	TP-C2	T-22R07†

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA		
	IMPEDANCE	DC RES.	DC RES.	DC RES.	FREED-EISEMANN PART No.	THORDARSON PART No.	INSTALLATION NOTES
175	2800Ω CT	2.5Ω	400Ω CT	.5Ω	Part of QSD-A3	T22S60 *	* Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	FIELD RES.	VC IMP.	VC DIA.	FREED-EISEMANN PART No.	JENSEN PART No.	THORDARSON PART No.	
176	250Ω	2-7Ω	VC DIA.	QSD-A3			
B	11-1/2"	1-1/4"					Cone has special adjustment feature-Order from manufacturer.
177	VC IMP.	3-4Ω	VC DIA.	QSD-A4	ST-107		Alternate Speaker
B	4-1/2"	1/2"			Mod. PS-V		NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA			INSTALLATION NOTES
		PRI.	SEC.	FREED-EISEMANN PART No.	MEISSNER PART No.	THORDARSON PART No.	
178	Loop RF Choke	1.5Ω		LC-B1			
179	1st AF Coil	13Ω		TR-A1			
180	2nd AF Coil	33Ω		TR-A1			
181	1st AF Coil	5Ω		TR-A4			
182	2nd AF Coil	5Ω		TR-A4			
183	1st AF Coil	3.5Ω		TR-A2			
184	2nd AF Coil	3.5Ω		TR-A5			
185	1st AF Coil	3.5Ω		TR-A3			
186	2nd AF Coil	3.5Ω		TR-A6			
187	1st AF Coil	3.5Ω		TR-A7			
188	2nd AF Coil	3.5Ω		TR-A7			
189	1st AF Coil	3.5Ω		TR-A7			
190	2nd AF Coil	3.5Ω		TR-A7			
191	1st AF Coil	3.5Ω		TR-A7			
192	2nd AF Coil	3.5Ω		TR-A7			
193	1st AF Coil	3.5Ω		TR-A7			
194	2nd AF Coil	3.5Ω		TR-A7			
195	1st AF Coil	3.5Ω		TR-A7			
196	2nd AF Coil	3.5Ω		TR-A7			
197	1st AF Coil	3.5Ω		TR-A7			
198	2nd AF Coil	3.5Ω		TR-A7			

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					FREED-EISEMANN PART No.	THORDARSON PART No.	
199	Bayonet	6-8	0.25	Blue			Type 44

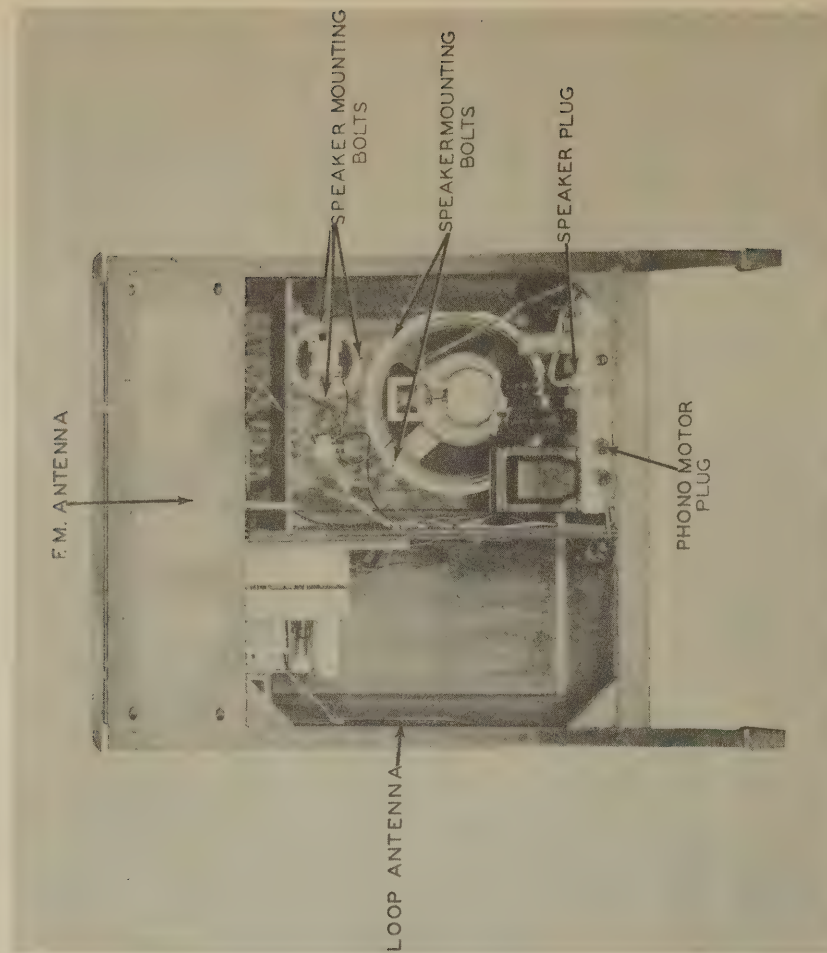
PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

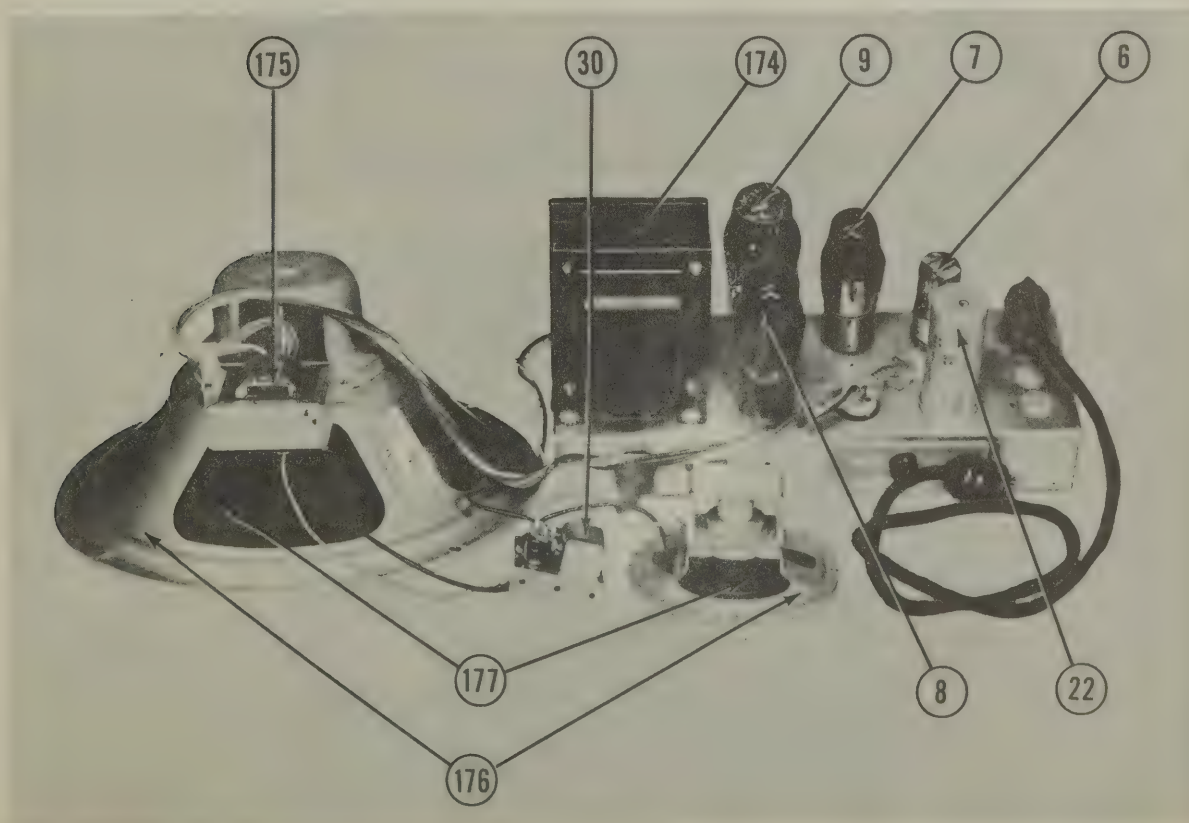
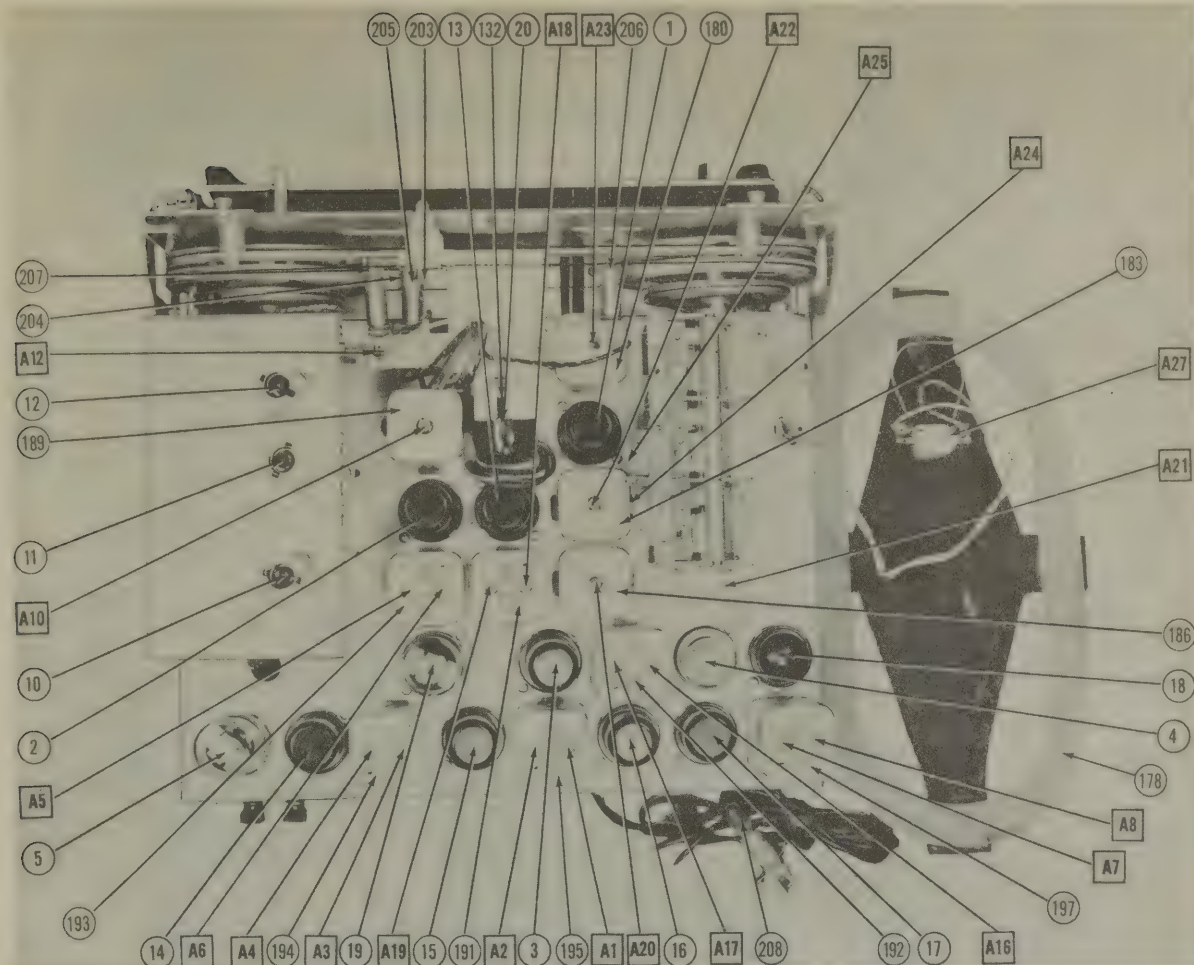
ITEM No.	PART NAME	FREED-EISEMANN PART No.	NOTES
209	Switch	SR-131	Wave band
210	Switch	SR-A2	Treble Control
211	Switch	SR-A3	Ant. Loop

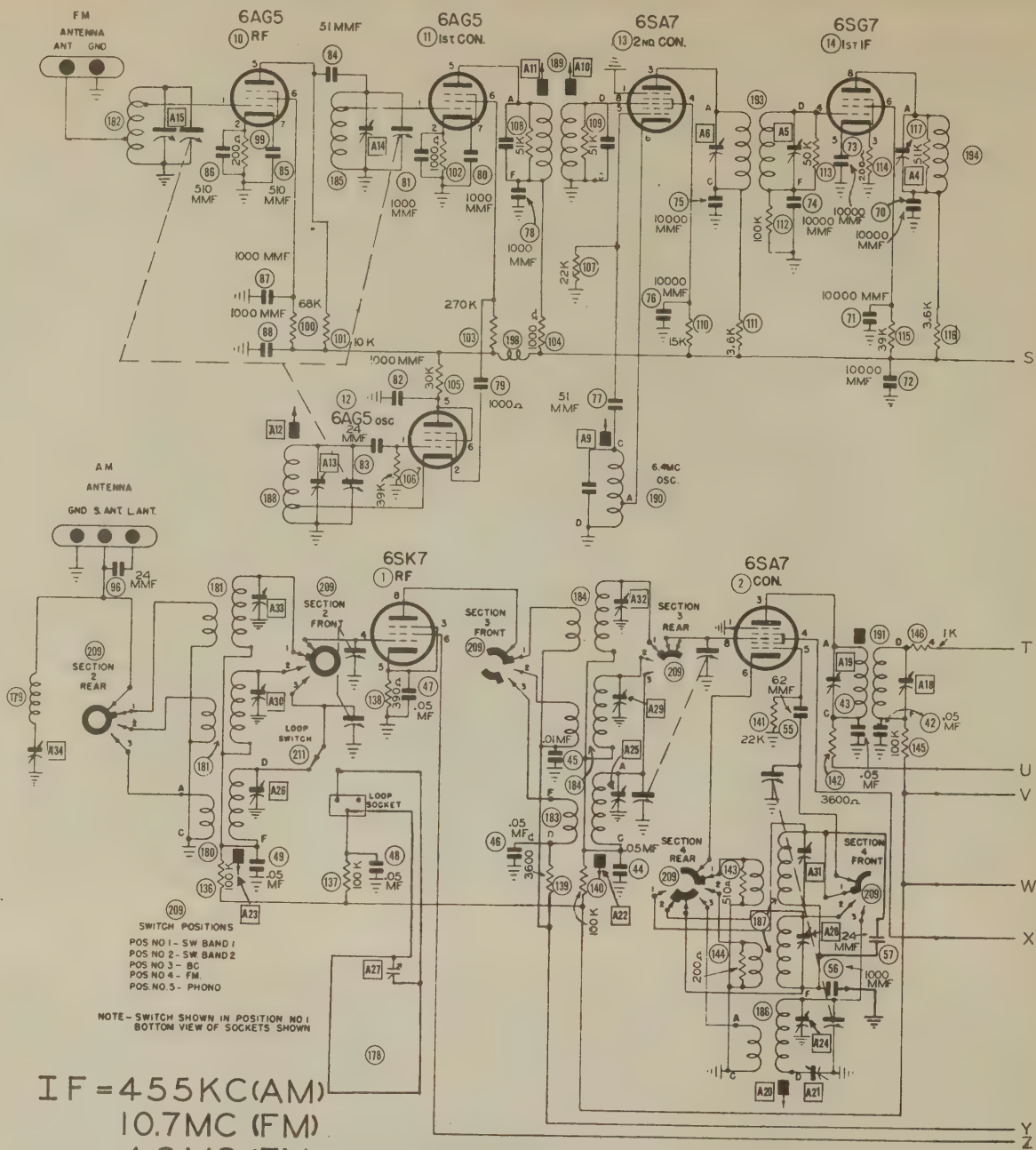
DISASSEMBLY INSTRUCTIONS

1. Remove the six push-on type control knobs.
2. Disconnect AC line cord from power supply.
3. Disconnect AC phono-motor plug to power supply.
4. Remove the set screw from speaker plug and remove plug from socket on power supply.
5. Disconnect power supply cable from power supply and receiver chassis.
6. Disconnect plug from high frequency speaker assembly bracket.
7. Disconnect speaker plug from receiver chassis.
8. Disconnect the phono-cabinet light plug from chassis.
9. Disconnect the phono-pickup plug from receiver chassis.
10. Disconnect the FM antenna leads from the receiver chassis.
11. Disconnect loop antenna plug from receiver chassis.
12. Remove four machine bolts and lock washers from power supply. Remove power supply.
13. Remove twelve hex head self tapping screws from cover plate of power supply. Remove plate.
14. Remove three machine screws from chassis board.
15. Remove five wood screws from dial cabinet board.
16. Remove two wood screws from cabinet lid support. (Lay lid back.)
17. Lift dial board and chassis through top of cabinet.
18. Remove four machine screws and washers holding chassis to chassis board. Remove chassis.
19. Remove four hex nuts and lock washers from large speaker posts. Remove speaker.
20. Remove four hex nuts and lock washers from high frequency speaker posts.
21. Remove three Phillips head screws from high frequency speaker bracket assembly. Remove speaker and assembly.
22. Remove two Phillips head screws from loop antenna. Remove loop antenna.



CHASSIS—TOP VIEW





STAGE GAIN MEASUREMENTS		
ANT. to RF GRID	6X	600KC
RF GRID to CONV. GRID	10X	600KC
CONVERSION GAIN	40X	600KC to 455KC
1st IF TRANS	1X	455KC
IF TUBE	170X	455KC
2nd IF TRANS	1X	455KC
AUDIO	25X	400 CPS
PHASE INV. (Grid to Plate)	10X	400 CPS
OUTPUT (Grid to Plate)	15X	400 CPS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

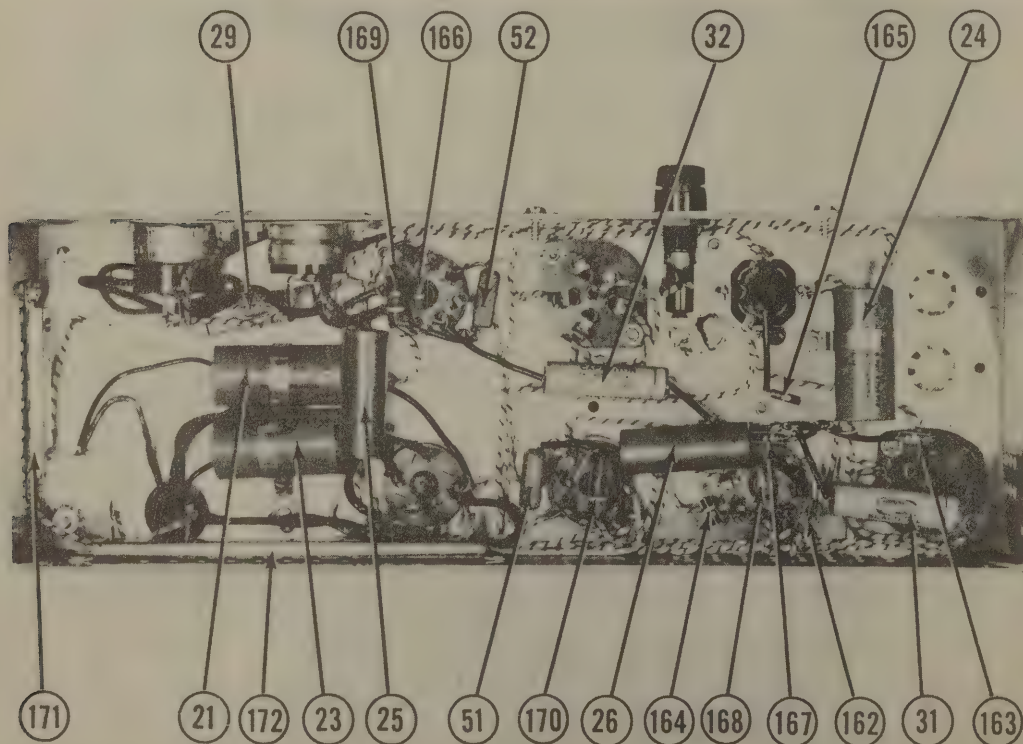
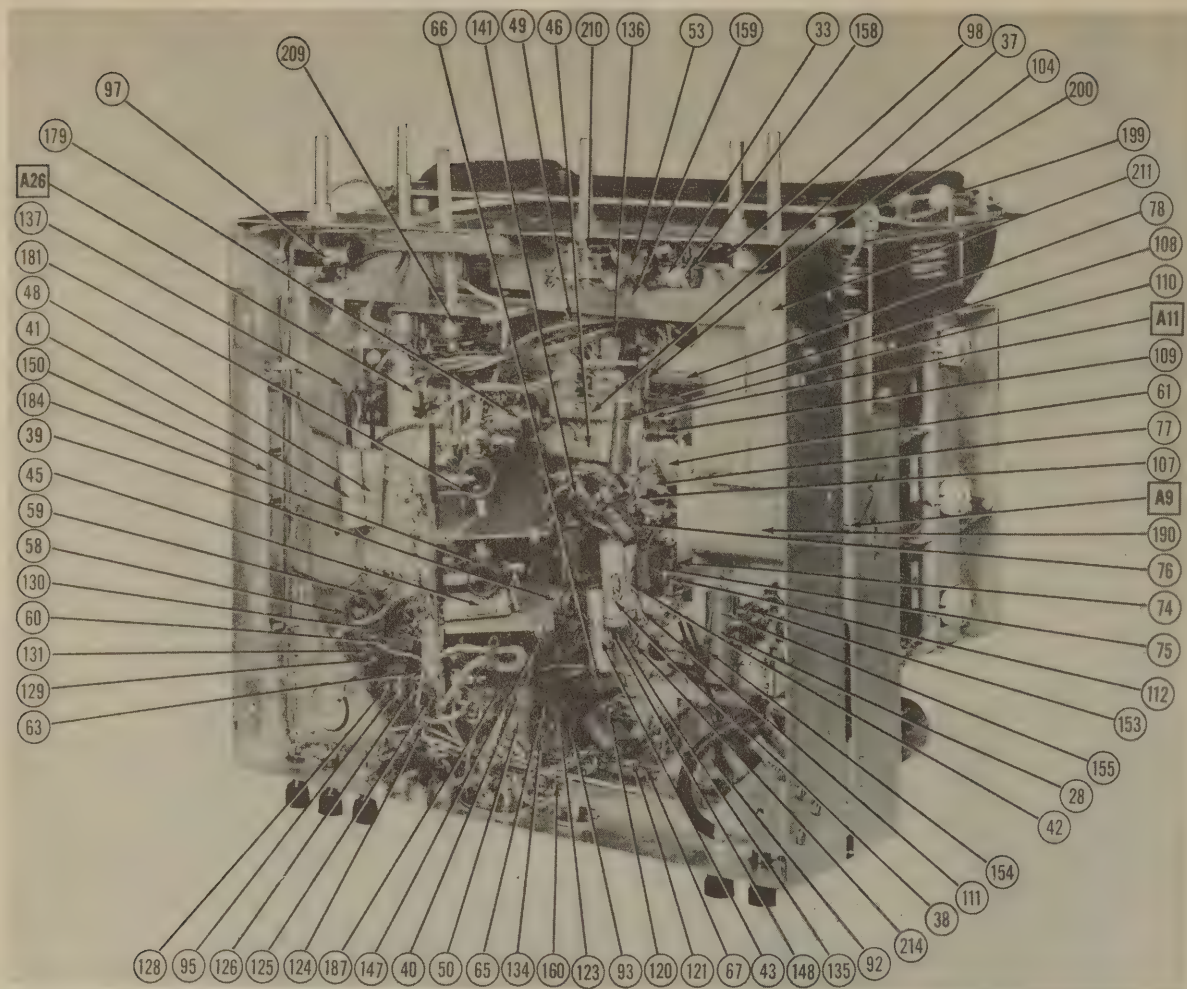


RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

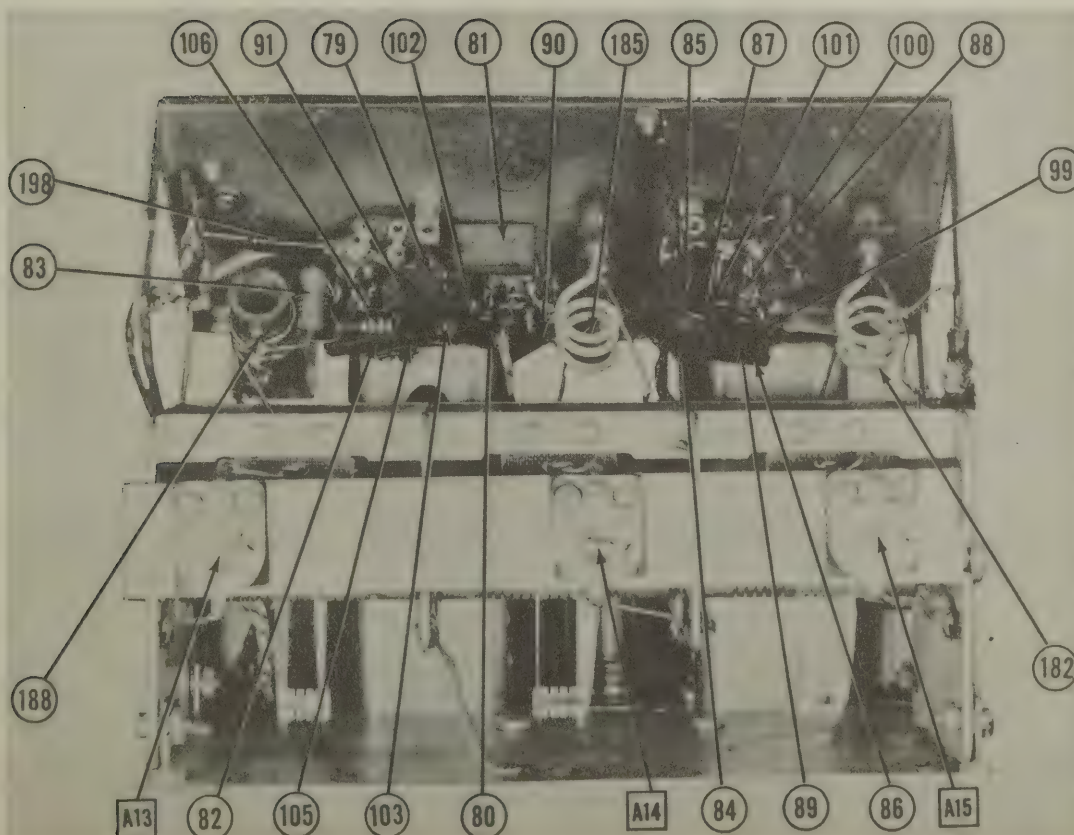
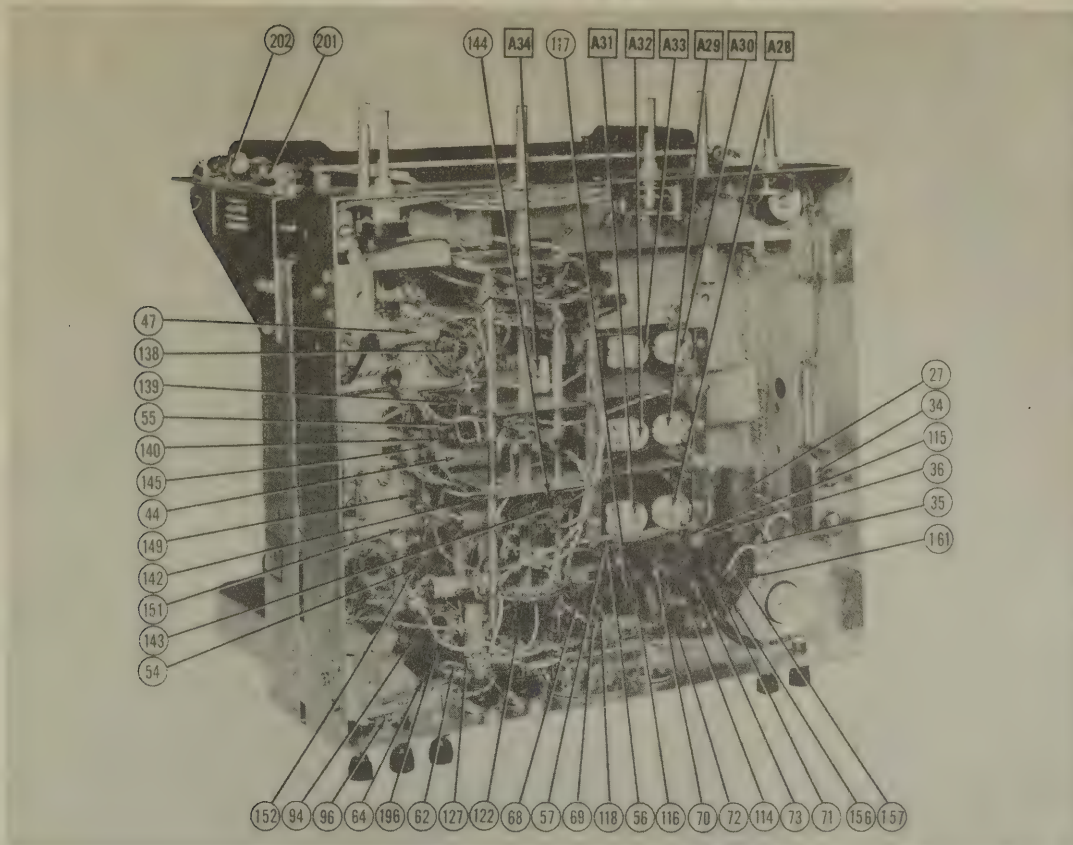
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0 Ω	0 Ω	380 Ω	810K Ω	380 Ω	3.3K Ω		8.2K Ω
2	6SA7	0 Ω	0 Ω	8.2K Ω	3.3K Ω	19.2K Ω	3 Ω	1 Ω	800K Ω
3	6SK7	0 Ω	0 Ω	910 Ω	810K Ω	910 Ω	3.3K Ω	1 Ω	8.3K Ω
4	6SL7GT	255K Ω	211K Ω	5K Ω	260K Ω	0 Ω	0 Ω	1 Ω	0 Ω
5	6J5GT	0 Ω	0 Ω	14.6K Ω	4.9K Ω	460K Ω	258K Ω	1 Ω	4.9K Ω
6	6J5GT	0 Ω	0 Ω	120K Ω	24K Ω	17.1K Ω	INF.	1 Ω	4.5K Ω
7	6Y6G	0 Ω	0 Ω	5K Ω	4.7K Ω	225K Ω	2.2K Ω	1 Ω	98 Ω
8	6Y6G	0 Ω	0 Ω	5K Ω	4.7K Ω	195K Ω	2.1K Ω	1 Ω	98 Ω
9	5U4G	INF.	500K Ω	INF.	132 Ω	INF.	132 Ω	INF.	5K Ω
10	6AG5	0 Ω	190 Ω	1 Ω	0 Ω	17.5K Ω	76K Ω	190 Ω	
11	6AG5	0 Ω	920 Ω	0 Ω	1 Ω	10.5K Ω	270K Ω	920 Ω	
12	6AG5	35.5K Ω	0 Ω	1 Ω	0 Ω	36K Ω	36K Ω	0 Ω	
13	6SA7	0 Ω	0 Ω	12.5K Ω	23K Ω	21.2K Ω	0 Ω	1 Ω	1 Ω
14	6SG7	0 Ω	1 Ω	190 Ω	86K Ω	190 Ω	45K Ω	0 Ω	12.8K Ω
15	6SG7	0 Ω	0 Ω	350 Ω	96K Ω	350 Ω	46K Ω	1 Ω	12.7K Ω
16	6SH7	0 Ω	0 Ω	0 Ω	46K Ω	0 Ω	14K Ω	1 Ω	100K Ω
17	6SH7	0 Ω	0 Ω	0 Ω	26K Ω	0 Ω	14K Ω	1 Ω	100K Ω
18	6H6	0 Ω	0 Ω	93K Ω	190K Ω	93K Ω	260K Ω	1 Ω	0 Ω
19	6J5GT	0 Ω	0 Ω	315K Ω	730K Ω	780K Ω	9.3K Ω	1 Ω	5K Ω

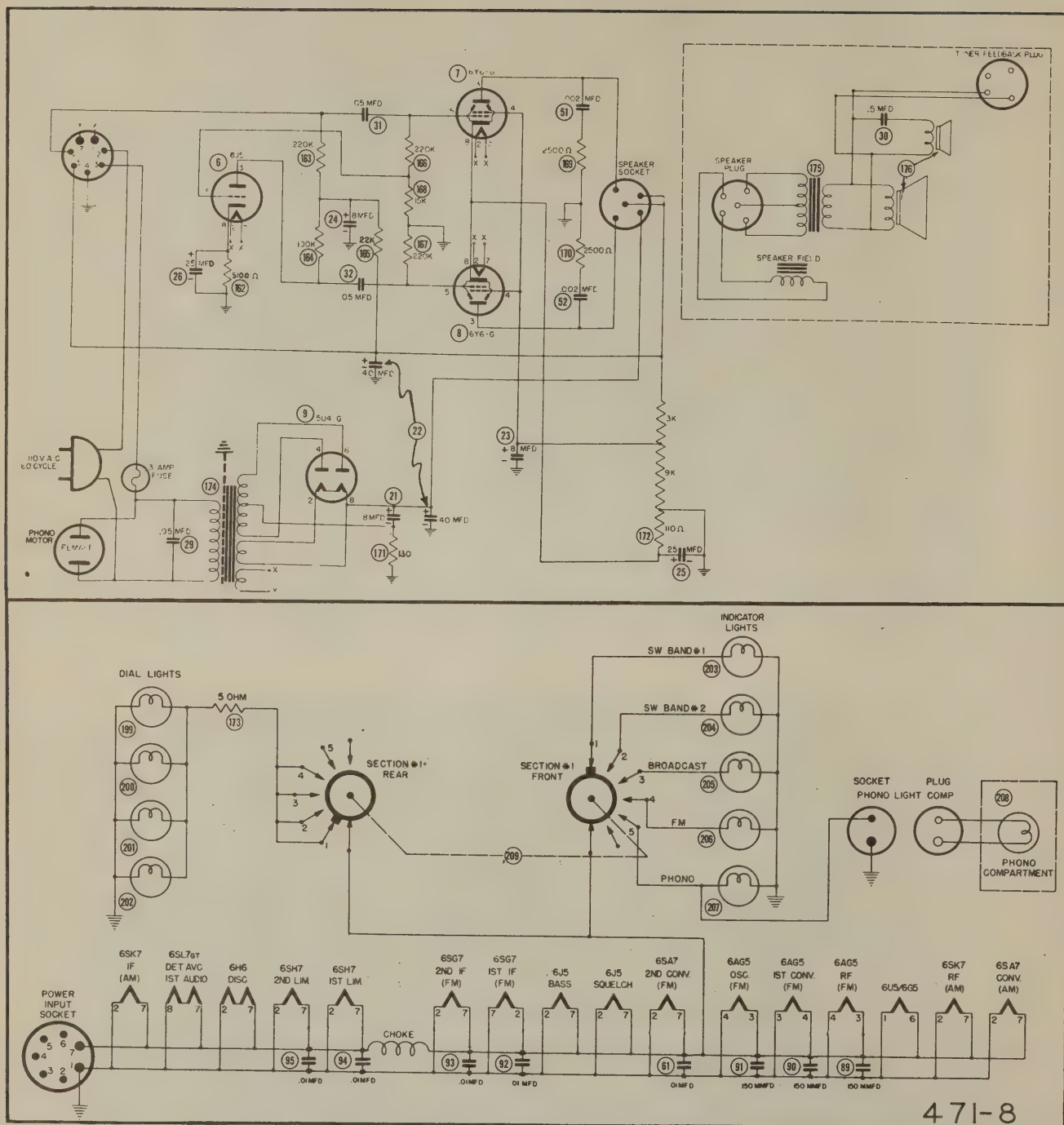
- 1 - DC Voltage measurements are at 20,000 ohms per volt. AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.

CHASSIS—BOTTOM VIEW



CHASSIS—BOTTOM VIEW





ALIGNMENT INSTRUCTIONS

For dial pointer adjustment, rotate both variables to the fully closed position and set dial pointers to index mark at low ends of the dial scales. If adjustment is needed, make sure to cement the pointer carriage to the dial cord. Before attempting to align set allow it and signal generator to warm up for at least 30 minutes. In alignment of discriminator connect a zero center microammeter with 500KΩ resistor in series with it across resistor #131 in the discriminator load for Step 4 and across the entire discriminator load (from Pin 4 of 6H6 discriminator tube to ground) for Step 5. In AM alignment volume control should be at maximum, bass control at minimum, and output of signal generator no higher than is necessary to obtain output signal. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 4 of 6SG7 2nd IF Tube #15. Low side to ground lug of same tube socket.	4.33C unmodulated	FM	FM variable fully open	VTM across limiter filter resistor #123	A1, A2.	Remove noise suppressor 6J5 tube #19. Adjust for maximum output.
.1 MFD.	High side to pin 4 of 6SG7 1st IF Tube #14 and low side to ground lug of same tube socket.	"	"	"	"	A3, A4.	Adjust for maximum output. Do not repeat any of the above adjustments.
.1 MFD.	High side to pin #8 of 6SA7 2nd Converter Tube #13 and low side to ground lug of same tube socket.	"	"	"	"	A5, A6.	Adjust for maximum output. Do not repeat any of the above adjustments.
.1 MFD.	"	"	"	"	Across resistor #131 (See prealignment instructions)	A7	"
.1 MFD.	"	"	"	"	Pin 4 of 6H6 (#18) to ground (See prealignment instructions)	A8	Adjust for zero output. Swing signal generator 75KC above and 75KC below IF frequency and record both readings. If not equal, repeat last two steps and check again. It may be necessary to adjust A8 slightly to get these readings equal. This adjustment is very critical as misadjustment will cause distortion of FM reception.
.1 MFD.	"	Unmodulated 10.7MC	"	"	VTM across limiter filter resistor #123. Microammeter same as in last step	A9	Adjust for maximum output on VTM.
.1 MFD.	"	"	"	"	"	A10, A11	Adjust for maximum output on VTM making certain that peaking occurs when the microammeter is connected from pin 4 of 6H6 disc tube #18 to ground, reads zero. If it does not, repeat last two steps.
.1 MFD.	High side to FM ant. post and low side to chassis.	Unmodulated 92MC	"	92MC	"	A12	Adjust for maximum output on VTM and zero on the microammeter. If the latter does not read zero rock tuning gang slightly and adjust A12.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
150Ω	"	106KC	"	106KC	"	A13	Adjust for maximum output on VTM and zero on microammeter, rocking the tuning gang if latter does not read zero. Repeat last two steps.
150Ω	"	"	"	"	"	A14	Adjust for maximum output on the VTM and zero on the microammeter.
150Ω	"	"	"	"	"	A15	Adjust for maximum output on the VTM and zero on the microammeter. Replace noise suppressor tube 6J5 #19.
.1 MFD.	High side to pin #4 (grid) of 6SK7 IF Tube #5 and low side to ground lug of same tube socket.	455KC modulated	BC	Tuning cap fully open.	across voice coil	A16, A17	Adjust for maximum output
.1 MFD.	High side to station of center section of AM variable and low side to chassis.	"	"	"	"	A18, A19	Adjust for maximum output. Do not repeat any of the above adjustments.
200MMFD	High side to AM ant. binding post.	1000KC modulated	BC Ant. switch to out-side ant.	1000KC	"	A20	Adjust for maximum output
200MMFD	"	600KC modulated	"	600KC	"	A21	"
200MMFD	"	1500KC modulated	"	1500KC	"	A22, A23, A24	"
200MMFD	"	"	"	"	"	A25, A26	Adjust for maximum output. If receiver was badly out of alignment recheck the last 5 steps.
	Disconnect		BC Ant. switch to loop	BC station near 1400KC	"	A27	Adjust for maximum output
400 Ω	High side to AM ant. binding post. Low side to ground.	9.9MC modulated	SW Band 2 Ant. Switch to out-side ant.	9.9MC	"	A28	"
400 Ω	"	"	"	"	"	A29, A30	Rock variable and adjust for maximum output.
400 Ω	"	17.5MC modulated	SW Band 1 Ant. Switch to out-side ant.	17.5MC	"	A31	Adjust for maximum output
400 Ω	"	"	"	"	"	A32, A33	Rock variable and adjust for maximum output.
200 MMF	High side to AM ant. binding post. Low side to chassis.	455KC strong signal modulated	BC	1000KC	"	A34	Adjust for minimum output

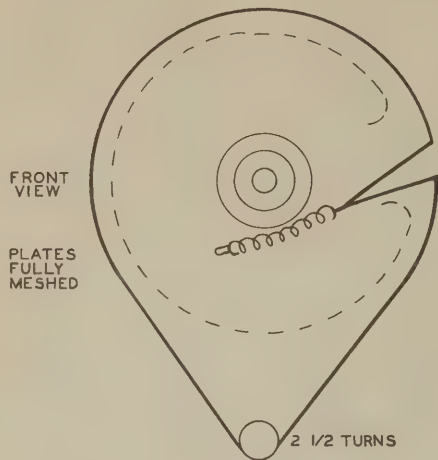


FIG. 1 DIAL DRIVE (AM)

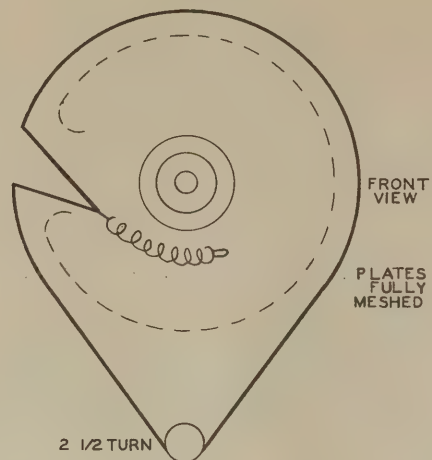


FIG. 2 DIAL DRIVE (F.M.)

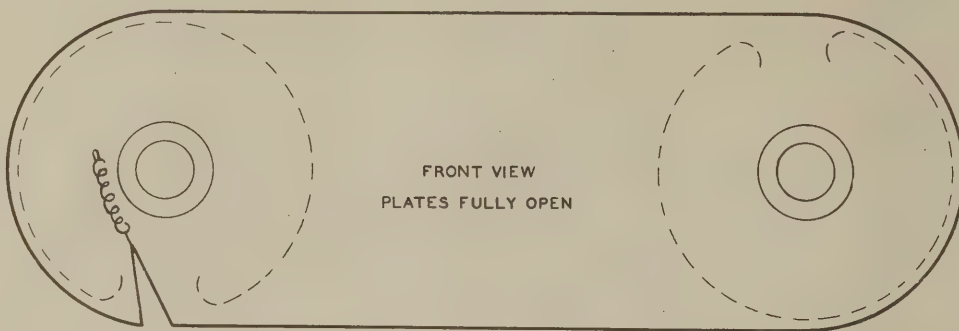


FIG. 3 DIAL DRUMS
A.M. TUNING

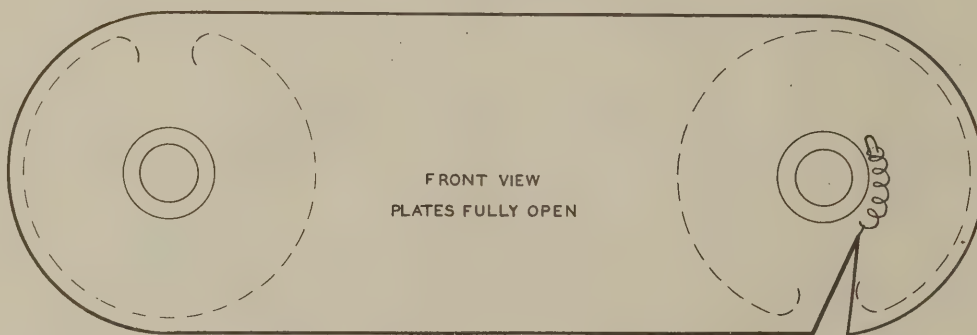
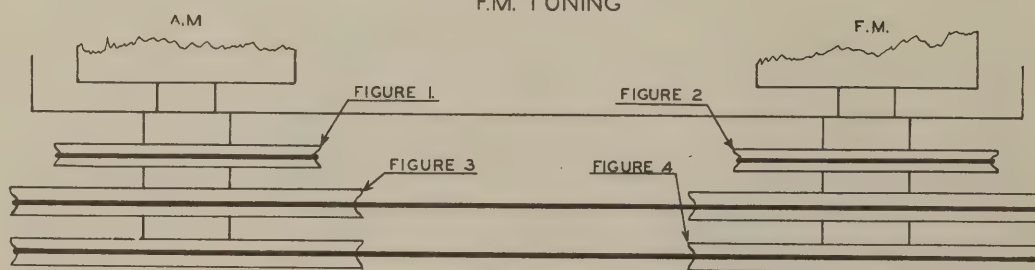


FIG. 4 DIAL DRUMS
F.M. TUNING



DIAL CORD DRIVES



GRANTLINE MODEL 651

TRADE NAME Grantline, Model 651
 SUPPLIER W. T. Grant Co., 1441 Broadway, N.Y., N.Y.
 TYPE SET AC - DC Superheterodyne - Self Contained Loop Antenna
 TUBES (FIVE) Types, 14Q7 Converter, 14A7/12B7, 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.

POWER SUPPLY 105-125 Volts AC-DC
 TUNING RANGE—BROADCAST 540-1700KC

RATING .235 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD.	High side to stat- tor of rear sec- tion of variable. Low side to B-.	455KC	Quiet point at high freq. end. of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
100 MMF.	High side to ant. lead. Low side to chassis.	1720KC	High freq. end. (Fully clockwise)	"	A5	" " " "
100 MMF.	High side to ant. lead. Low side to chassis.	1500KC	Tune for maxi- mum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS (Continued)

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		GRANTLINE PART No.	STANDARD REPLACEMENT		
1	Converter	1407	1407/12B7	8AL	
2	1F Amp.	1407/12B7	1407/12B7	8V	
3	Det.-AVC-AF	14B6	14B6	8W	
4	Power Output	50A5	50A5	6AA	
5	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		GRANTLINE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
6A	CAP. 40	A-25-019	M-2x40-150	TA-440	PSA150-40-	Filter - Red
7	150				40	
8	400					
9	400					
10	400					
11	600					
12	600					
13	600					
14	600					
15	500					

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		GRANTLINE PART No.	MALLORY PART No.	CLAROSTAT PART No.	
16A	500KΩ	A-9-066	MR43	M-60-Z	Volume Control
B	Shaft	Not Req.	Not Req.	Not Req.	Attach to 16A per instructions
C	Switch		41	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		GRANTLINE PART No.	MALLORY PART No.	IRC PART No.	
17	22KΩ			ETS-22K	Red-Red-Or. Oscillator Grid
18	10 Meg.			BIS-10 Meg.	Br.-Blk.-Blue AVC Network
19	3.3 Meg.			BIS-3.3 Meg.	Or.-Or.-Grn. " "
20	10 Meg.			ETS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
21	470KΩ			ETS-470K	Yl.-Yl.-Yl. " " Plate Load
22	470KΩ			ETS-470K	Yl.-Yl.-Yl. Output Grid
23	150KΩ			BM-8-150	Br.-Grn.-Br. Cathode
24	220KΩ			ETS-220K	Red-Red-Yl. Line Isolation
25	1000Ω			BTA-1000	Br.-Blk.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		GRANTLINE PART No.	THORDARIN PART No.	
26	170Ω	3.3Ω	155Ω	Part of B-11.037	A-3876	T-22545

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		QUANTITY	JENSEN	
		PART No.	PART No.	
27	FIELD PM 8-30 C.O.S. DIA. 4-5/8"	ST-105 Mod. PS-X B-11.037		
28	9/16"			NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT

RF COILS

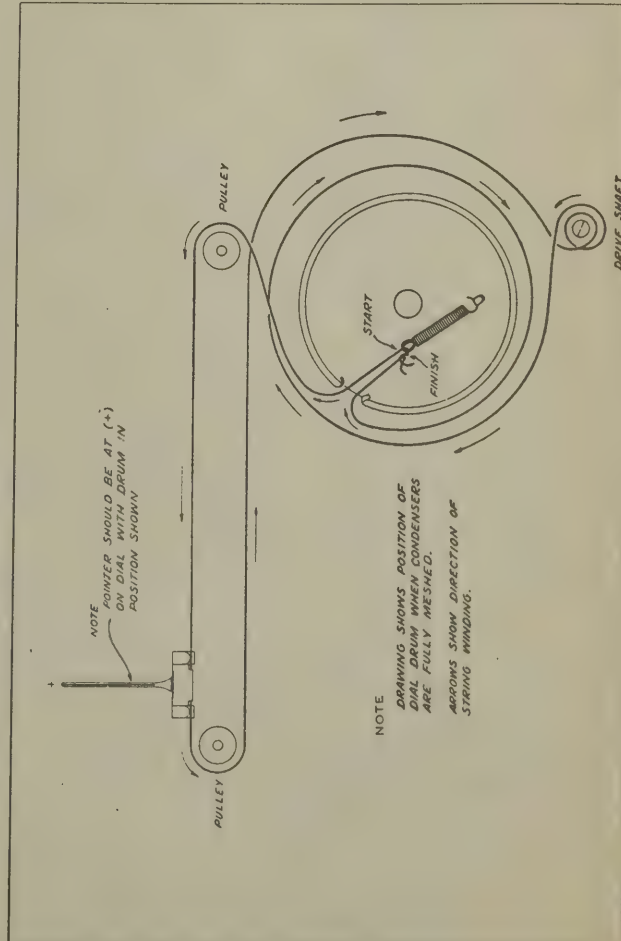
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	GRANVILLE PART No.	MEISSNER PART No.	
29	Loop ant.	0Ω	1.5Ω	B5-006		
30	osc. coil	.5Ω	6.5Ω	B2-192		
31	Input IF	21.5Ω	21Ω	02-191-1	14-1040 *	* Add 50 MFED Cap. from grid to high side tuning Cap.
32	Output IF	14.2Ω	14.5Ω	02-191-2	16-6667	
					16-6667	

DIAL LIGHT

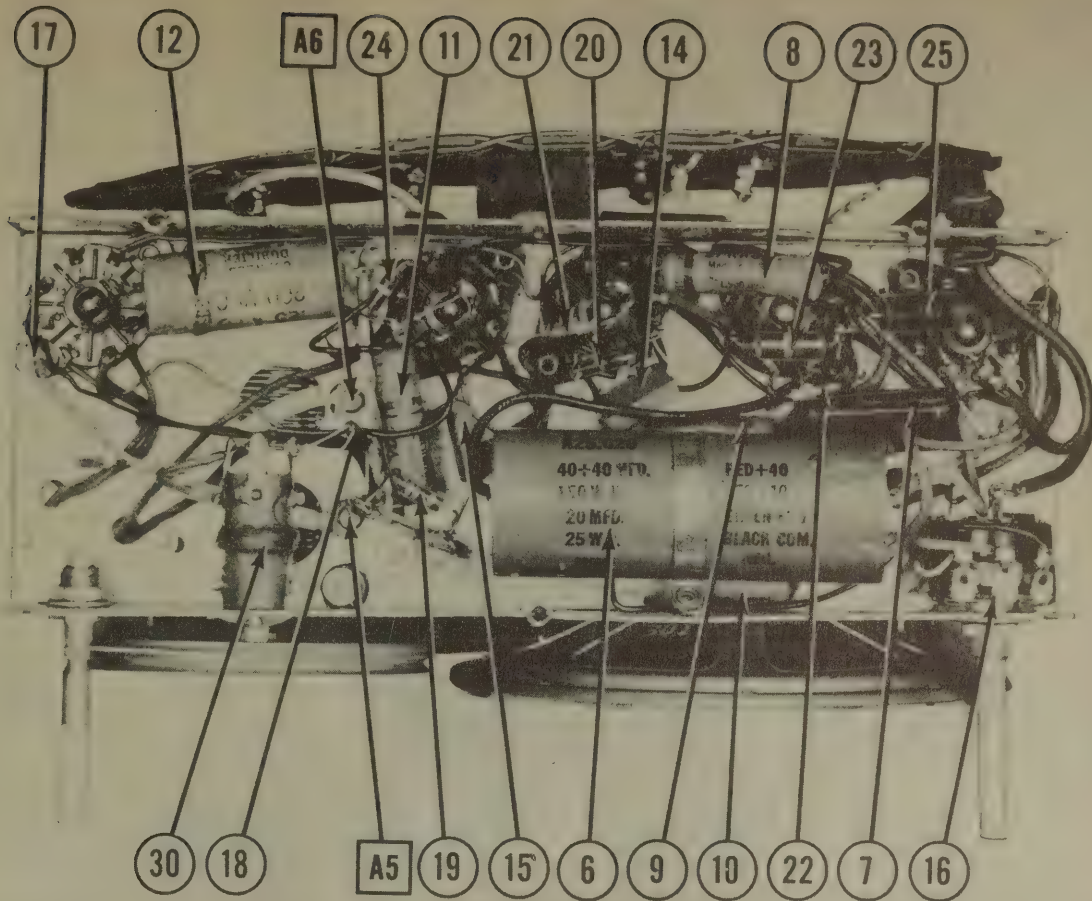
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GRANTLINE	PART No.	
33	Bayonet	6-8	0.15	Brown			Type 47

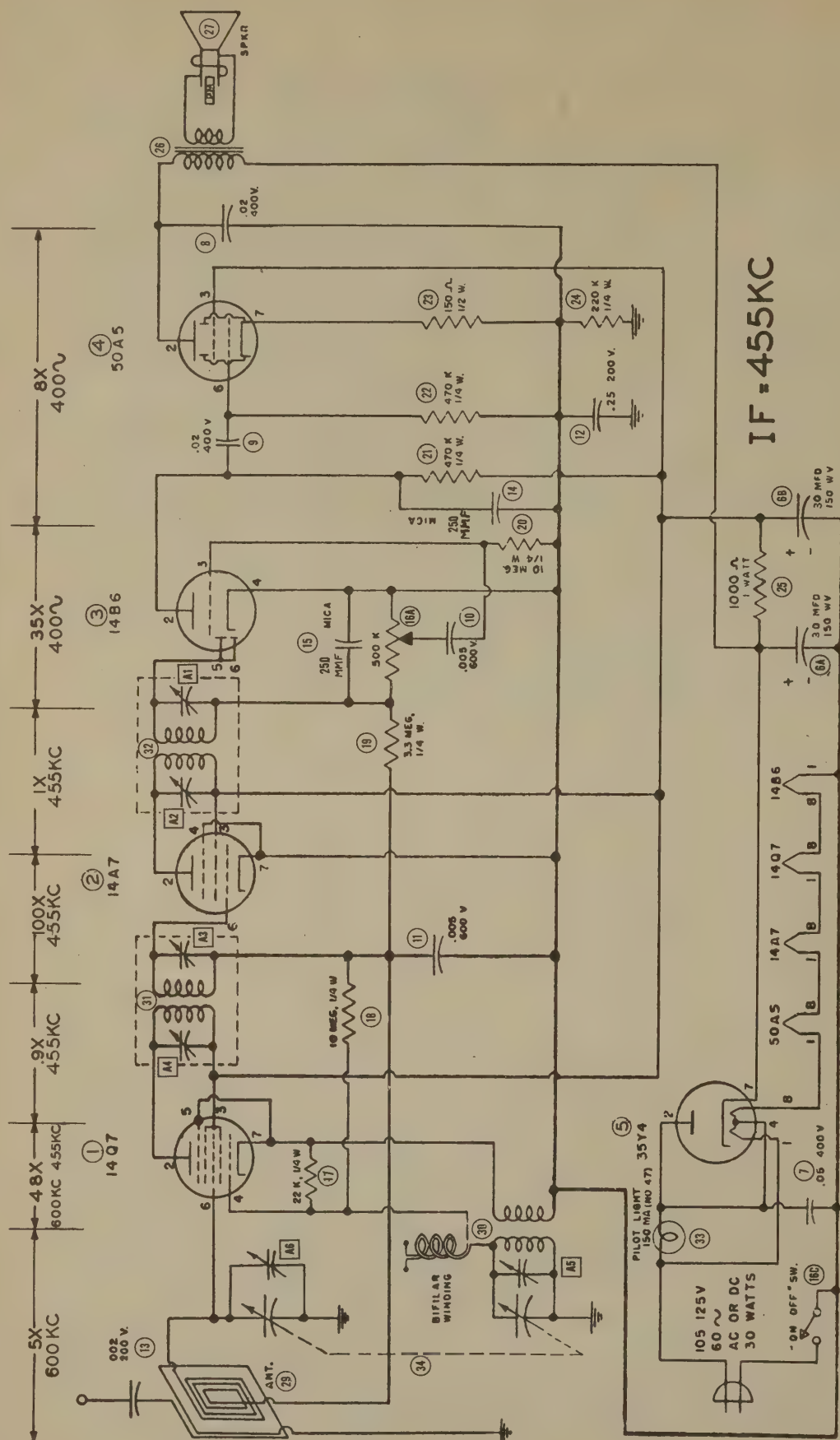
MISCELLANEOUS

ITEM No.	PART NAME	GRANTLINE PART No.	NOTES
34	Tuning Cap.	06-032	2 Gang Variable Cap.



CHASSIS—BOTTOM VIEW





IF = 455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	25.5VAC	93V.DC	93V.DC	-4.8VDC	OV.	-15V.DC	OV.	13V.AC
2	14A7	38VAC	93V.DC	93V.DC	OV.	OV.	-15V.DC	OV.	25.5VAC
3	14B6	OV.	60V.DC	-45VDC	OV.	-7V.DC	-7V.DC	OV.	13V.AC
4	50A5	87VAC	107VDC	93VDC	OV.	OV.	OV.	5.8VDC	38VAC
5	35Y4	117VAC	113VAC	OV.	113VAC	103VDC	OV.	113VDC	87VAC

RESISTANCE READINGS

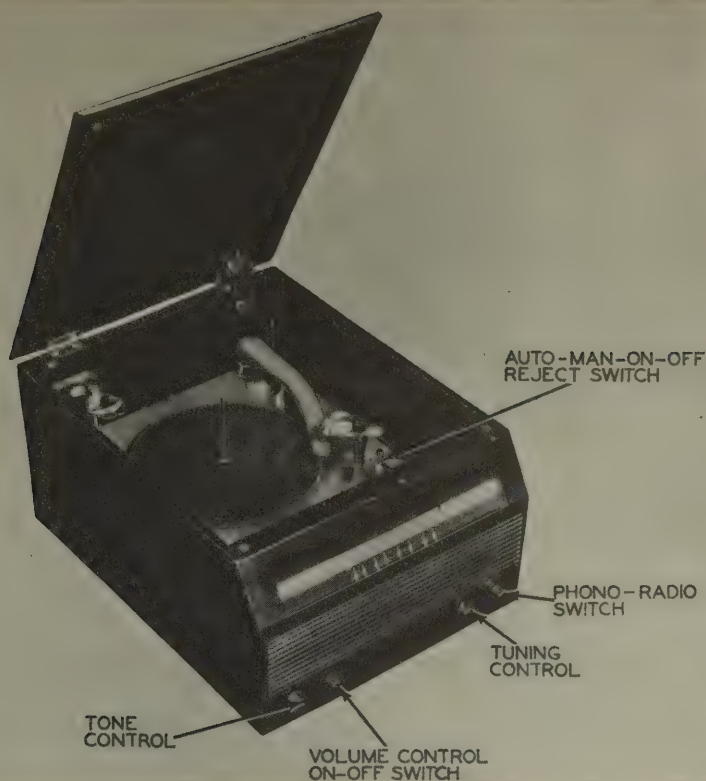
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	24.5 ohms	231 K ohms	231 K ohms	19.8 K ohms	.5 ohms	2.7 MEG ohms	.5 ohms	12.5 ohms
2	14A7	39 ohms	231 K ohms	231 K ohms	0 ohms	222 K ohms	2.7 MEG ohms	0 ohms	24.5 ohms
3	14B6	0 ohms	700 K ohms	12 MEG ohms	0 ohms	470 K ohms	470 K ohms	1 NF	12.5 ohms
4	50A5	87 ohms	230 K ohms	231 K ohms	0 ohms	0 ohms	450 K ohms	130 ohms	39 ohms
5	35Y4	112 ohms	110 ohms	110 ohms	110 ohms	230 K ohms	1 NF	230 K ohms	87 ohms

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

471-9

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



GRANTLINE MODEL 6547

TRADE NAME	Grantline, Model 6547		
MANUFACTURER	W. T. Grant Co., 1441 Broadway, N. Y., N. Y.		
TYPE SET	AC Operated Combination Automatic Phono. - Superheterodyne Receiver, Self Contained Loop Antenna		
TUBES (FIVE)	Types, 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.		
POWER SUPPLY	105-125 Volts AC		
TUNING RANGE—BROADCAST	540-1700KC	RATING	.240 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	Quiet point at high freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
100 MMF.	High side to ant. lead. Low side to chassis.	1720KC	High freq. end (Fully clockwise)	"	A5	" " " "
100 MMF.	"	1500KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		GRANTLINE PART No.	STANDARD REPLACEMENT		
1	Converter	1407	1407	8AL	
2	IF amp.	1447	1447	8V	
3	Det.-AVC-LF	1456	1456	8W	
4	Power Output	50A5	50A5	9AA	
5	Rectifier	35Y4	35Y4	9AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		GRANTLINE PART No.	MALLOY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	CAP. 40	A25.019	2N511	M-2x40-150	TA-440	Filter
7	150					
8	.05					
9	.02					
10	.005					
11	.005					
12	.005					
13	.005					
14	.005					
15	.005					
16	.005					
17	.005					

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		GRANTLINE PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	500K Ω	A-9.066	MR48	D13-133	M-60-Z	Volume Control
18B	100K Ω	Not Req.	M26	41	Not Req.	Attach to 18A per instructions
19A	100K Ω	A-9.068	MR39	D13-128	M-51-Z	Tone Control
19B	100K Ω	Not Req.	Not Req.	A	Not Req.	Attach to 19A per instructions

RESISTORS

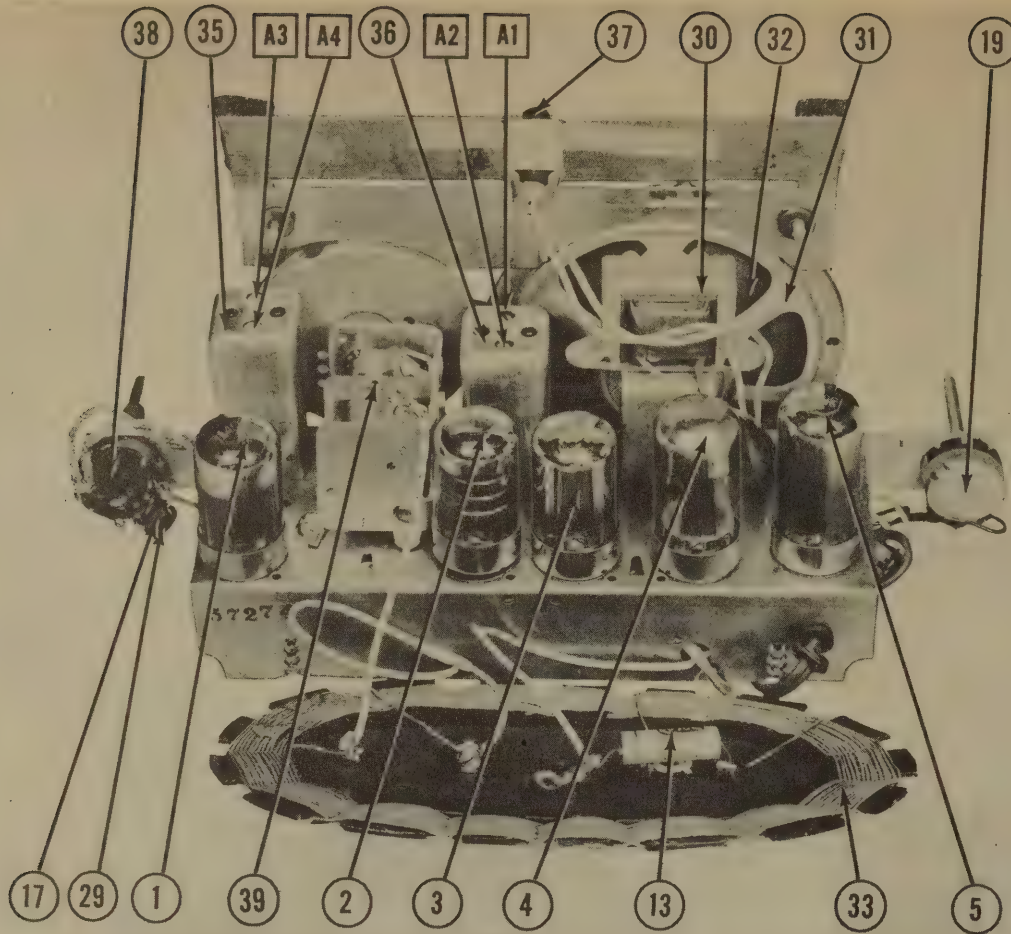
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		GRANTLINE PART No.	MALLOY PART No.	IRC PART No.	SPRAGUE PART No.	
20	22K Ω					Red-Red-Or. Oscillator Grid
21	10 Meg.					Br.-Blk.-Blue AVC Network
22	3.3 Meg.					Br.-Or.-Grn. AVC Network
23	10 Meg.					Br.-Blk.-Blue 1st AF Grid
24	470K Ω					Yl.-Vl.-Yl. 1st AF Plate Load
25	470K Ω					Yl.-Vl.-Yl. Output Grid
26	150K Ω					Br.-Grn.-Br. Output Cathode
27	220K Ω					Red-Red-Yl. Line Isolation
28	100K Ω					Br.-Blk.-Red Filter
29	2.2 Meg.					Red-Red-Grn. Series Phono.

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		GRANTLINE PART No.	MALLOY PART No.	IRC PART No.	THORNDYKE PART No.	
30	1700W Ω	3.3Q	155Q	5Q	T-22945	

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA				INSTALLATION NOTES
		GRANTLINE PART No.	MALLOY PART No.	IRC PART No.	JENSEN PART No.	
31	FIELD VC IMP.				ST-105	
32	CONE DIA. MC DIA.				Mod. P5-X	
33	4-5/8"	9/16"				NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT.



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.			REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	OR	GRANTLINE PART No.	WEISSNER PART No.	
33	Loop Ant.	.8Ω	1.8Ω		B5.006		*Add 50 MFD. cap. from grid to high side tuning cap.
34	Osc. Coil	.8Ω	6.2Ω		B2.192	14-1040*	
35	Input IF	21.5Ω	21Ω		C2.191-1	16-6666	
36	Output IF	14.2Ω	14.5Ω		C2.191-2	16-6667	

DIAL LIGHT

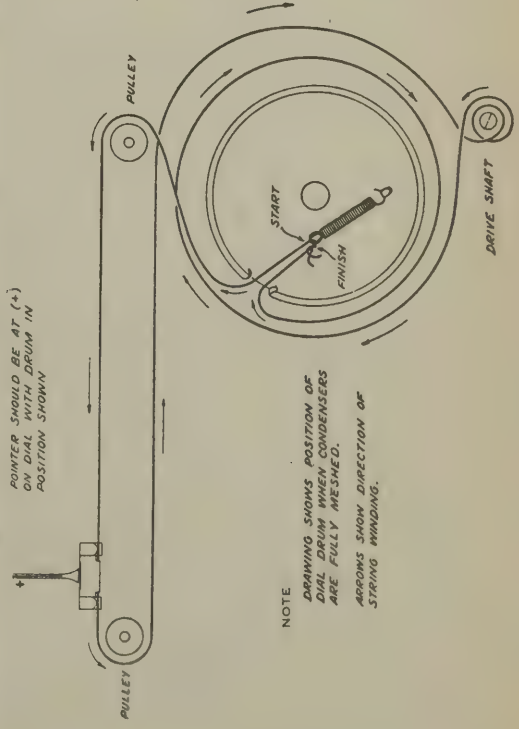
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GRANTLINE PART No.		
37	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

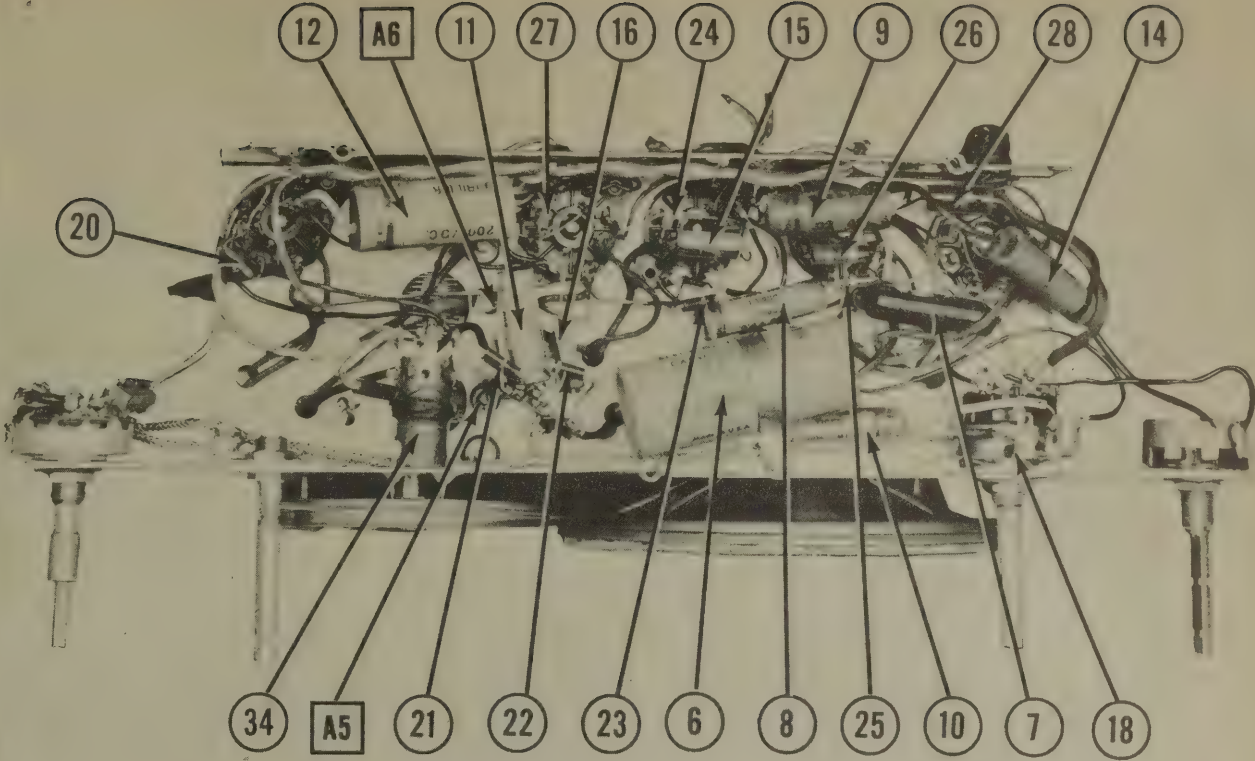
ITEM No.	PART NAME	GRANTLINE PART No.	NOTES
38	Switch		
39	Tuning Cap.	2 Gang Variable Cap.	

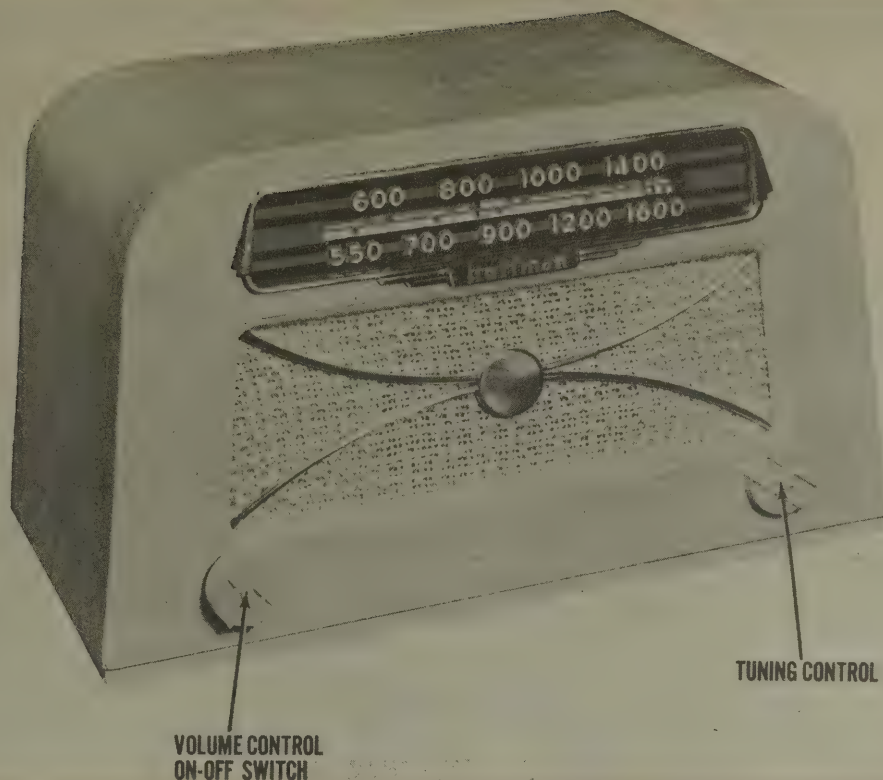
DISASSEMBLY INSTRUCTIONS

1. Remove the four push-on type control knobs and felt washers.
2. Remove five wood screws and washers holding inside panel board of cabinet.
3. Remove two wood screws holding loop antenna to panel board. Remove panel board from cabinet.
4. Remove record changer mounting bolts.
5. Remove four wood screws and washers from front changer mounting board. Slide board out from under changer and remove from cabinet.
6. Remove machine screws and washers holding chassis to chassis board.
7. Lift changer, radio chassis and loop antenna from cabinet.
8. Unsolder pickup leads from terminal strip.
9. Remove two machine screws holding phono-motor switch cap. Remove cap.
10. Unsolder the two blue and white leads from the phono-motor switch.



CHASSIS—BOTTOM VIEW





HOFFMAN MODEL A-309

TRADE NAME Hoffman Models A-202, A-309 (CH.119) MANUFACTURER Hoffman Radio Corp., 3761 S. Hill St., Los Angeles, Calif. TYPE SET AC-DC Superheterodyne-Self Contained Loop Antenna TUBES (SIX) Types 12BA6 RF Amp., 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 35L6G/GT Power Output, 35W4 Rectifier POWER SUPPLY 117 Volts AC-DC TUNING RANGE—BROADCAST 530-1620KC						
RATING .245 Amps. @ 117V AC ALIGNMENT INSTRUCTIONS Use isolation transformer if available. If not connect capacitor in series with low side of signal generator and B-. volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjustments.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #1 of 12BA6 Low side to B-.	455KC	Fully clockwise	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200 MMFD	High side to ant. terminal and low side to chassis.	1620KC	"	"	A5	Adjust for maximum output.
200 MMFD	"	1400KC	Tune for maximum output.	"	A6	"

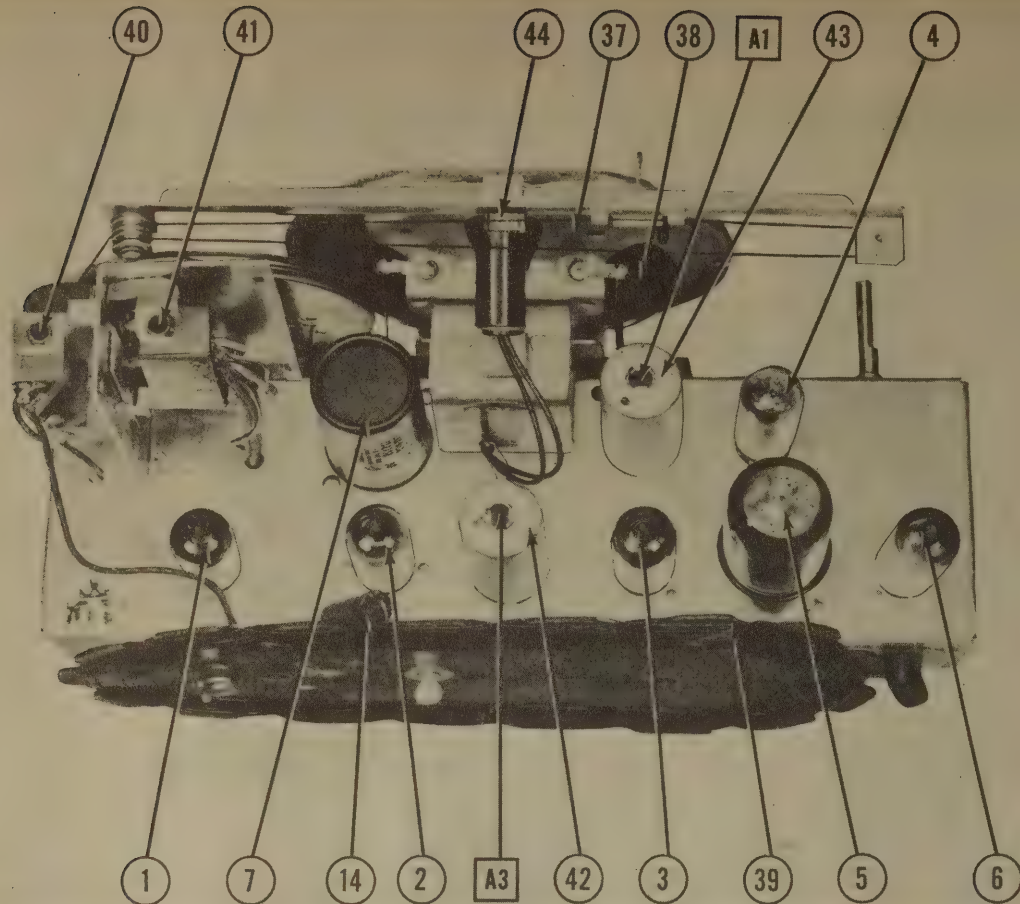
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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		HOFFMAN PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	30 CAP.	4201	DY-5030-150	EL-35	AF1010D	▲ Filter
8	150	4101	S-4-05	TC-15	DT4S5	Line Filter
9	.05	4108	S-4-2	TC-2	DT4P2	Line Isolation
10	.2	4106	S-4-02	TC-12	DT4S2	Output Plate bypass
11	.005	4102	S-3-005	TC-25	DT4D5	Audio Coupling
12	.005	4102	S-4-005	TC-15	DT4S5	"
13	.05	4102	S-4-05	TC-15	DT4S5	AVC Filter
14	.005	4102	M0.5-325	1PM-325	5W5T25	Ext. Ant. Isolation
15	270	4001	M0.5-325	1PM-325	5W5T25	Audio Plate Bypass
16	270	4001	M0.5-325	1PM-325	5W5T25	RF Bypass Diode
17	100	4000	M0.5-31	1PM-31	5W5T1	Osc. Grid Capacitor
18	100	4000	M0.5-31	1PM-31	5W5T1	RF Coupling
19	100	4012	M0.5-31	1PM-31	5W5T1	Fixed Trimmer
20	100	4012				"
21	100	4012				"
22	100	4012				"

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		HOFFMAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
23A	500K. 1	4802	MR48	DL3-133	M-30-Z	Volume Control.
23B	Shatt.	Not Req.	Not Req.	A	Not Req.	Attach to 23A per instructions
23C	Switch	"	126	41	SW-A	"

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		HOFFMAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
24	2200K	4512	BTS-2200	BTS-2200		Red-Red-Red RF Plate Load
25	47K	4504	BTS-47K	BTS-47K		Y1.-V1.-Or. Converter Grid
26	22K	4501	BTS-22K	BTS-22K		Red-Red-Or. Oscillator
27	47K	4508	BW-2-47	BW-2-47		Y1.-V1.-Blk. Surge Limiter
28	2.2 Meg.	4502	BTS-2.2 Meg.	BTS-2.2 Meg.		Red-Red-Grn. AVC Network
29	47K	4504	BTS-47K	BTS-47K		Y1.-V1.-Or. RF Filter
30	10 Meg.	4505	BTS-10 Meg.	BTS-10 Meg.		Er.-Blk.-blue 1st AF Grid
31	220K	4500	BTS-220K	BTS-220K		Red-Red-Y1. " Plate Load
32	470K	4506	BTS-470K	BTS-470K		Y1.-V1.-Y1. Output Grid
33	150K	4510	BW-2-150	BW-2-150		Br.-Grn.-Br. " Cathode
34	500K	4700	AB-500	AB-500		Filter
35	470K	4506	BTS-470K	BTS-470K		Y1.-V1.-Y1. Line Isolation

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	HOFFMAN PART No.	STANCOR THORDARN PART No.	
	PRI. SEC.	PRI. SEC.			
36	1600Ω	3.25Ω	180Ω	.8Ω	

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		HOFFMAN PART No.	JENSEN PART No.	
37	VC IMP. 3.25Ω	9003	ST-105 Mod. PS-X	
38	VC DIA. 1/2"			NOT READILY REPLACABLE—USE COMPLETE SPEAKER UNIT.

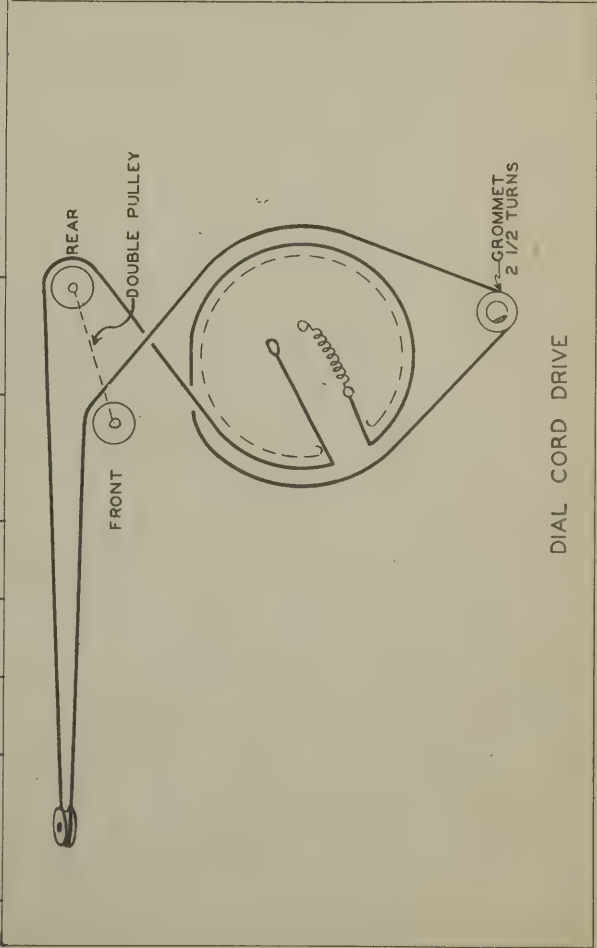
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	HOFFMAN PART No.	MEISSNER PART No.	
39	Loop Coil	.2Ω	1Ω			
40	RF Coil	6.5Ω	1Ω			
41	Osc. Coil	28Ω	27Ω			
42	Input IF	23Ω	27Ω			
43	Output IF					

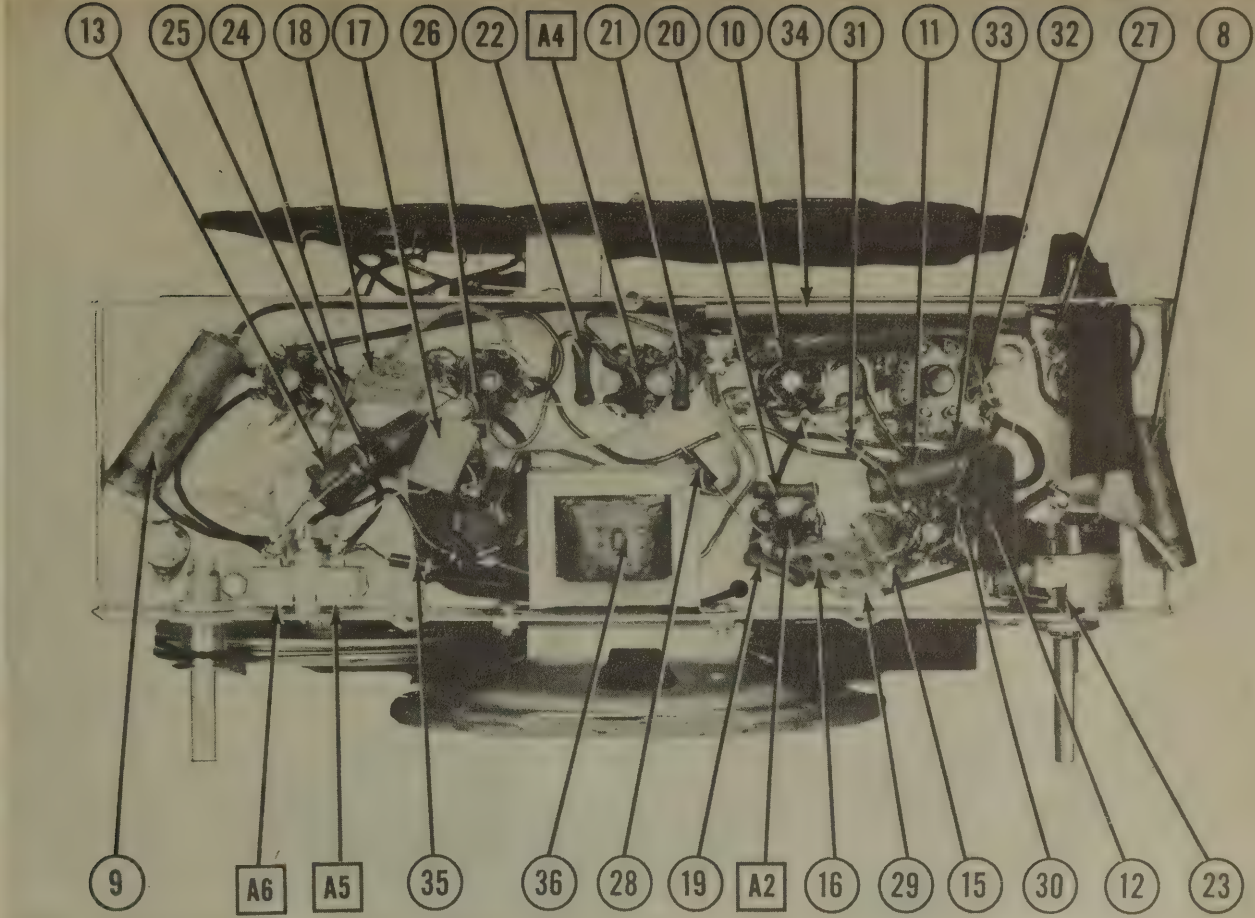
Remove 100μf condensers Item Nos. 19 & 20.
16-6668
16-6669

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	HOFFMAN PART No.	
44	Bayonet	6-8	0.15	Brown		Type 47



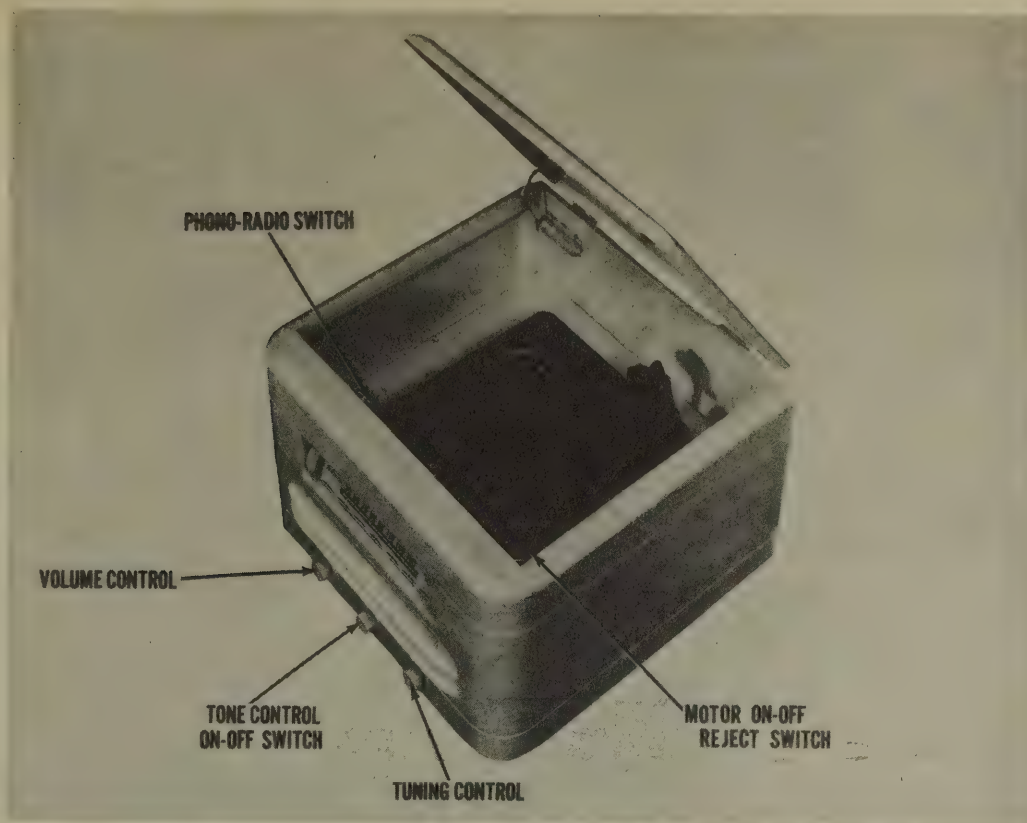
CHASSIS—BOTTOM VIEW



PHOTOFACT* Folder

HOFFMAN
MODEL A401

HOFFMAN
MODEL A401



HOFFMAN MODEL A401

HOFFMAN
MODEL A401

TRADE NAME Hoffman, Model A401 (CH. 102) MANUFACTURER Hoffman Radio Corp., 3761 S. Hill St., Los Angeles, Calif. TYPE SET AC Operated Radio-Phono Combination Superheterodyne Receiver-Self Contained Loop Ant. TUBES (SIX) Types 6SK7 RF Amp, 6SA7 Converter; 6SG7 IF Amp., 6SQ7 Det-AVC-AF, 6K6GT Power Output, 6X5GT Rectifier POWER SUPPLY 117 Volts AC TUNING RANGE—BROADCAST 535-1600KC						
RATING .480 Amp. @ 117 Volts AC						
ALIGNMENT INSTRUCTIONS Set volume control at maximum and keep output of signal generator no higher than is necessary to obtain output reading. When aligning, keep chassis and loop ant. in same relative position as when set is in cabinet. Use insulated alignment screwdriver for adjustments.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to stator or rear section of variable, low side to chassis.	455KC	Point of no interfering signal	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200MMFD	High side to ant. terminal. Low side to chassis.	1600KC	Variable fully open.	"	A5	"
200MMFD	"	1400KC	Tune for maximum output.	"	A6,A7	"

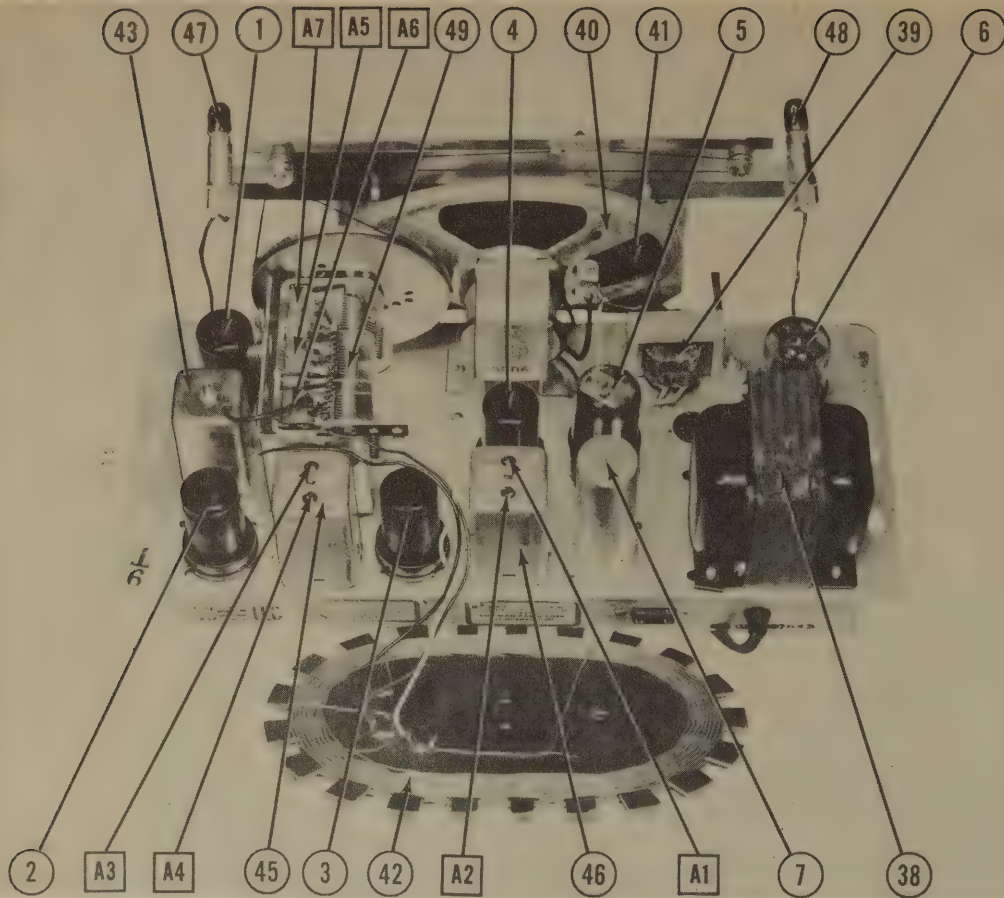
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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW



ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		HOFFMAN PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7	6SK7	8N	Some sets use 6SK7
2	Converter	6SK7	6A7	8R	
3	1st Amp.	6SG7	6SG7	8BK	
4	Det.-AVC-4F	6SC7	6SC7	8Q	
5	Power Output	6X3GT	6X3GT	7.	
6	Rectifier	6XSGT	6XSGT	8.	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		HOFFMAN PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	CAP. 20	4200	DY-312	EL-350	4F44J	▲ Filter
7B	20	450				
7C	20	25				
8	.01	600	S-6-01	TC-11	PRS25-25	TP410 Cath. bypass
9	.001	600	S-8-001	TC-21	684-001	TP404 Line bypass
10	.01	600	S-6-01	TC-11	684-001	TP408 Output Plate bypass
11	.01	600	S-6-01	TC-11	684-001	TP410 Audio coupling
12	.005	600	S-6-005	TC-25	684-005	TP408 Tone compensation
13	.05	400	S-4-05	TC-15	454-05	TP426 Audio coupling
14	.05	400	S-4-05	TC-15	454-05	TP428 IF Cath. bypass
15	.05	400	S-4-05	TC-15	454-05	TP428 RF bypass Pwr. Supp.
16	.05	200	S-4-05	TC-15	454-05	TP428 Screen bypass
17	.05	200	S-4-05	TC-15	454-05	TP428 AVC Filter
18	100	500	M0.5-31	LFM-31	1468-0001	SW5T1 Audio Plate bypass
19	100	500	M0.5-31	LFM-31	1468-0001	SW5T1 IF Bypass Diode
20	100	500	M0.5-31	LFM-31	1468-0001	SW5T1 IF Bypass Vol. Cont.
21	100	500	M0.5-31	LFM-31	1468-0001	SW5T1 Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		HOFFMAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22A	RESIST-250KΩ	1	4805	DI3-130	M-64-Z	Tone Control
22B	Shaft	Not Req.	ME44	A	Not Req.	Attach to 22A per instructions
23A	500KΩ	1	ME48	DI3-133	SW-A	Volume Control.
23B	Shaft	Not Req.	Not Req.	A	Not Req.	Attach to 23A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		HOFFMAN PART No.	IRC PART No.	STANDARD REPLACEMENT	
24	220KΩ	4500	BTS-220K	BTS-220K	Red-Red-Yl. AVC Network
25	10KΩ	4502	BTS-10K	BTS-10K	Br.-Blk.-Or. Oscillator Grid
26	2.2 Meg.	4503	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-neu-urn. AVC Network
27	10KΩ	4504	BTS-10K	BTS-10K	Br.-Blk.-Or. Screen Dropping
28	47KΩ	4505	BTS-47K	BTS-47K	Yl.-Yl.-Or. Diode RF Filter
29	10 Meg.	4506	BTS-10 Meg.	BTS-10 Meg.	Br.-blk.-blue 1st AF Grid
30	220KΩ	4507	BTS-220K	BTS-220K	Red-Red-Yl. 1st AF Plate Load
31	470KΩ	4508	BTS-470K	BTS-470K	Yl.-Yl.-Yl. Output Grid
32	560Ω	4509	BTS-560	BTS-560	Grn.-blue-br. Output Cathode
33	47Ω	4510	BW-47	BW-47	Yl.-Yl.-blk. 1st AF Cathode
34	330Ω	4511	BW-330	BW-330	Or.-Or.-sr. Feedback
35	15KΩ	4512	BTS-15K	BTS-15K	Gr.-Grn.-Or. Oscillator Grid
36	10 Meg.	4513	BTS-10 Meg.	BTS-10 Meg.	Br.-Blk.-Blue AVC Network
37	100KΩ	4514	BTS-100K	BTS-100K	Br.-Blk.-Yl. 2nd IF Transformer Shunt

PARTS LIST AND DESCRIPTIONS (Continued) **TRANSFORMER (POWER)**

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	HOFFMAN PART No.	STANCOR PART No.	
38	117V. AC @ 480mA	5.9V. AC @ 2.68A		5000	P-1820*	*Use universal mounting brackets and drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		HOFFMAN PART No.	THORDARN PART No.	
39	77Ω. 3.1A	550Ω	.85Ω	6130	T14891	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	DC IMP.		HOFFMAN PART No.	JENSEN PART No.	
40	1460Ω	3.19		9000		
41	4"x6"	3/4"		NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT.		

R F COILS

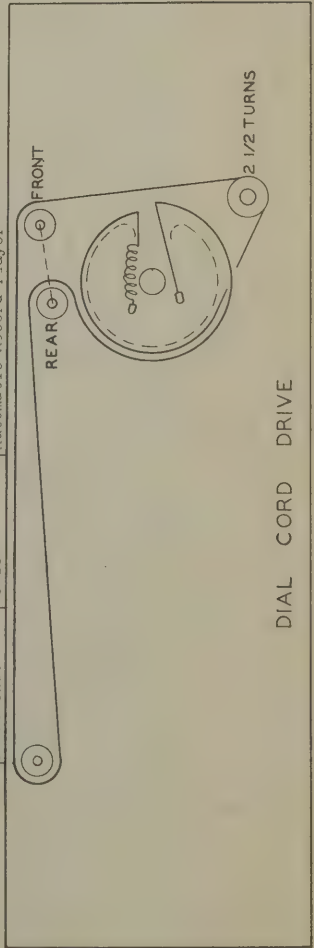
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	HOFFMAN PART No.	MEISSNER PART No.	
42	Loop ant.	02	1.30	5223		
43	5: Coil	.5Ω	5.8Ω	5200	14-7558	
44	5: Coil		5.50	5200	14-1040	
45	Input IF	14.40	14.45	5203	18-1658	
46	Output IF	26.75	1245	5204	18-2959	

DIAL LIGHT

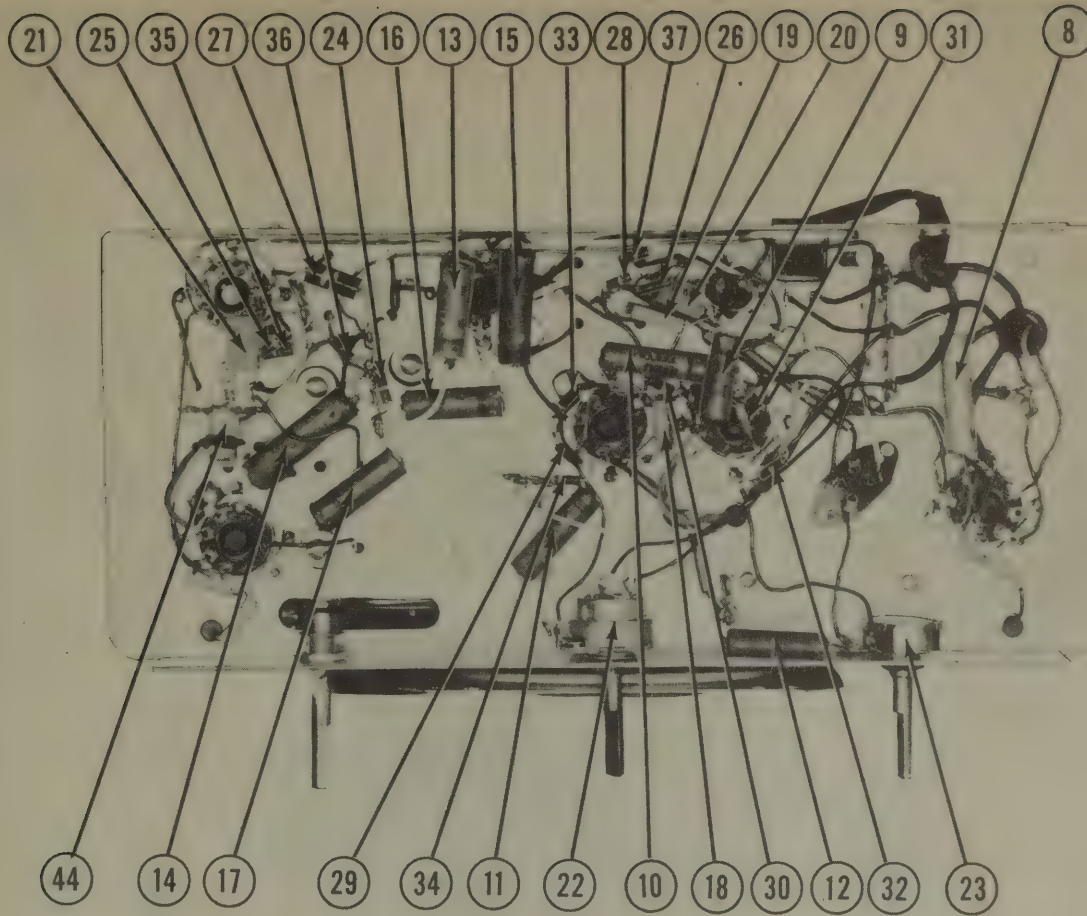
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	HOFFMAN PART No.	
47	Bayonet	6-9	0.25	blue		Type 44
48	Bayonet	3-5	0.25	blue		Type 44

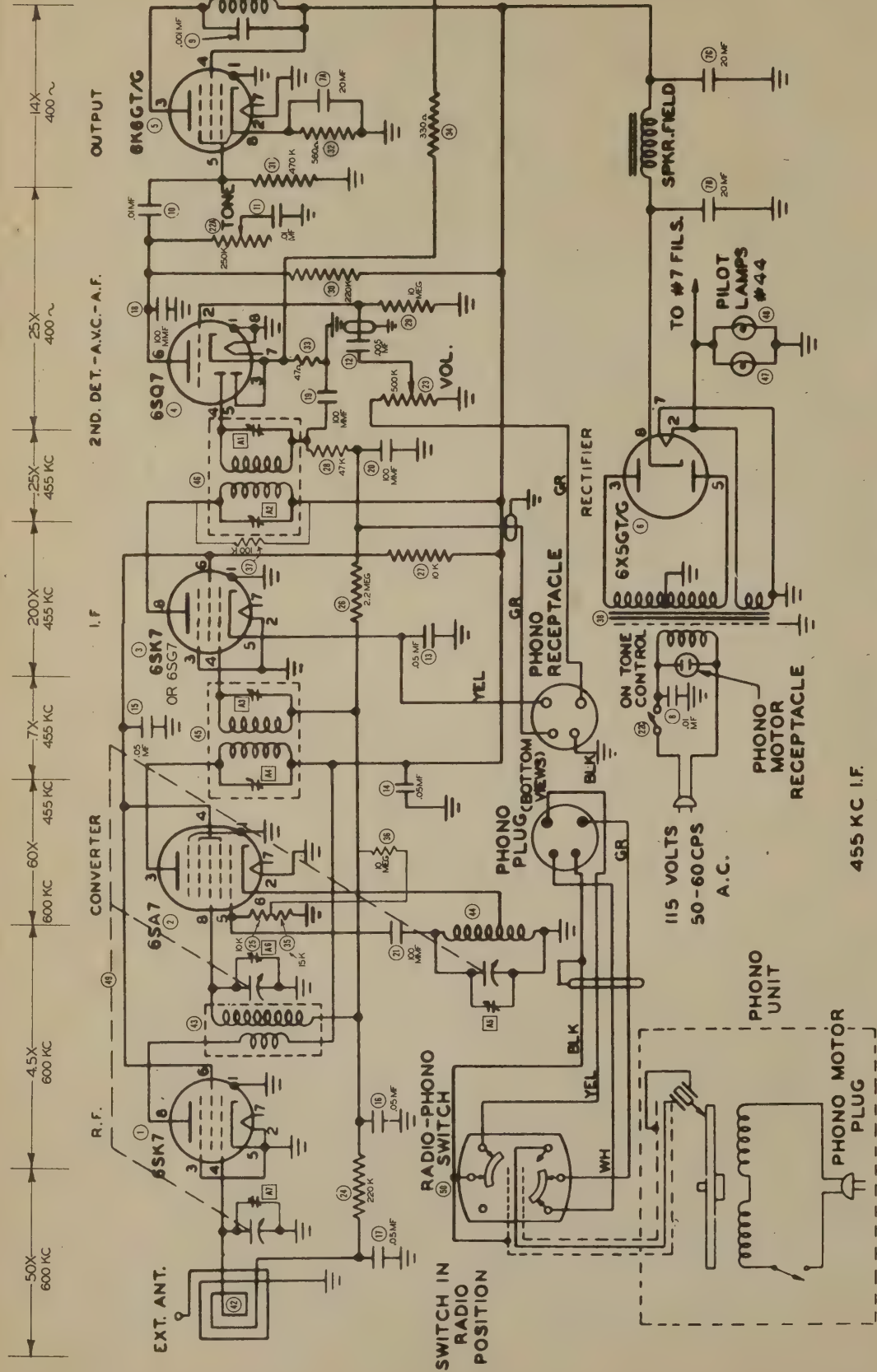
MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
49	3-band Var. Cap.	4400	388-308-180 TTF Includes IF, ant, Osc. Trimmers D.P.D.T. automatic Record Player
50	Radio-Phono SW	6001	
	Phono Unit	9011	



CHASSIS—BOTTOM VIEW





NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN RADIO POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	ON	ON	ON	95VDC	6.1VAC	222VDC	ON	ON
2	6SA7	ON	ON	ON	222VDC	95VDC	6.1VAC	ON	ON
3	6SQ7	ON	ON	ON	ON	ON	ON	ON	ON
4	6K6GT	ON	ON	ON	ON	ON	ON	ON	ON
5	6K6GT	ON	ON	ON	ON	ON	ON	ON	ON
6	6X5GT	ON	ON	ON	ON	ON	ON	ON	ON

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	ON	ON	ON	ON	ON	ON	ON	ON
2	6SA7	ON	ON	ON	ON	ON	ON	ON	ON
3	6SQ7	ON	ON	ON	ON	ON	ON	ON	ON
4	6K6GT	ON	ON	ON	ON	ON	ON	ON	ON
5	6K6GT	ON	ON	ON	ON	ON	ON	ON	ON
6	6X5GT	ON	ON	ON	ON	ON	ON	ON	ON

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4-71-12

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



LEWYT MODEL 615A

TRADE NAME	Lewyt, Model 615A
MANUFACTURER	Lewyt Corp., 60 Broadway, Brooklyn 11, N.Y.
TYPE SET	AC Operated Radio-Phonograph Combination Superheterodyne Receiver - Self Contained Loop Ant.
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 volts AC
TUNING RANGE-BROADCAST	550-1630KC
RATING	.240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #8 of 12SA7. Low side to B-.	455KC	High freq. end (Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
.1 MFD.	High side to ext. ant. Low side to ext. ground.	"	Low freq. end	"	A5	Adjust for minimum output.
200 MFD.	"	1630KC	High freq. end	"	A6	Adjust for maximum output.
200 MFD.	"	1400KC	Tune for maximum output.	"	A7	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove the push-on type control knobs and felt washers.
2. Remove the six Phillips head screws and washers from dial panel.
3. Lift the horizontal and vertical boards holding chassis, out of cabinet.
4. Remove two wood screws from antenna and ground terminal strip on back side of cabinet. Pull terminal strip out of cabinet.
5. Unsolder the antenna and ground leads from terminal lug.
6. Disconnect phono-pickup plug from chassis.
7. Remove three Phillips head screws and washers holding chassis to cabinet.
8. Remove two spring type nuts from bolts holding speaker to cabinet. Remove speaker.
9. Unsolder white and black phono-motor lead from pin #2 on rectifier tube socket.
10. Unsolder other phono motor lead from one side of phono-radio switch.

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PARTS LIST AND DESCRIPTIONS TUBES

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		LEWYT PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AFC-AF	12SK7GT	12SK7GT	8Q	
5	Power Output	25L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		LEWYT PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	CAP. 50		M-5030-150	TA-530	FRSA150-40	Filter - Red
8	30				PHS150-40	Filter
9	40				PHS150-40	Filter
10	25				PR25-25	Cath. bypass
11	.05				TC-15	Line Filter
12	400				484-05	Line Isolation
13	200				TC-1	Line Isolation
14	.1				484-1	Output Plate Bypass
15	.005				TC-25	Audio Coupling
16	600				S-6-005	Tone Compensation
17	.005				TC-25	Audio Coupling
18	600				S-6-005	AVC Filter
19	.005				TC-25	AVC Filter
20	.1				TC-1	Audio Plate Bypass
21	250				1FM-325	Tone Compensation
22	500				1FM-45	Osc. Grid Capacitor
23	500				1FM-45	Fixed Trimmer
24	150				1FM-315	RF Coupling
25	500				MS-41	
26	10				MOS-5-41	
27	500				MOS-5-31	

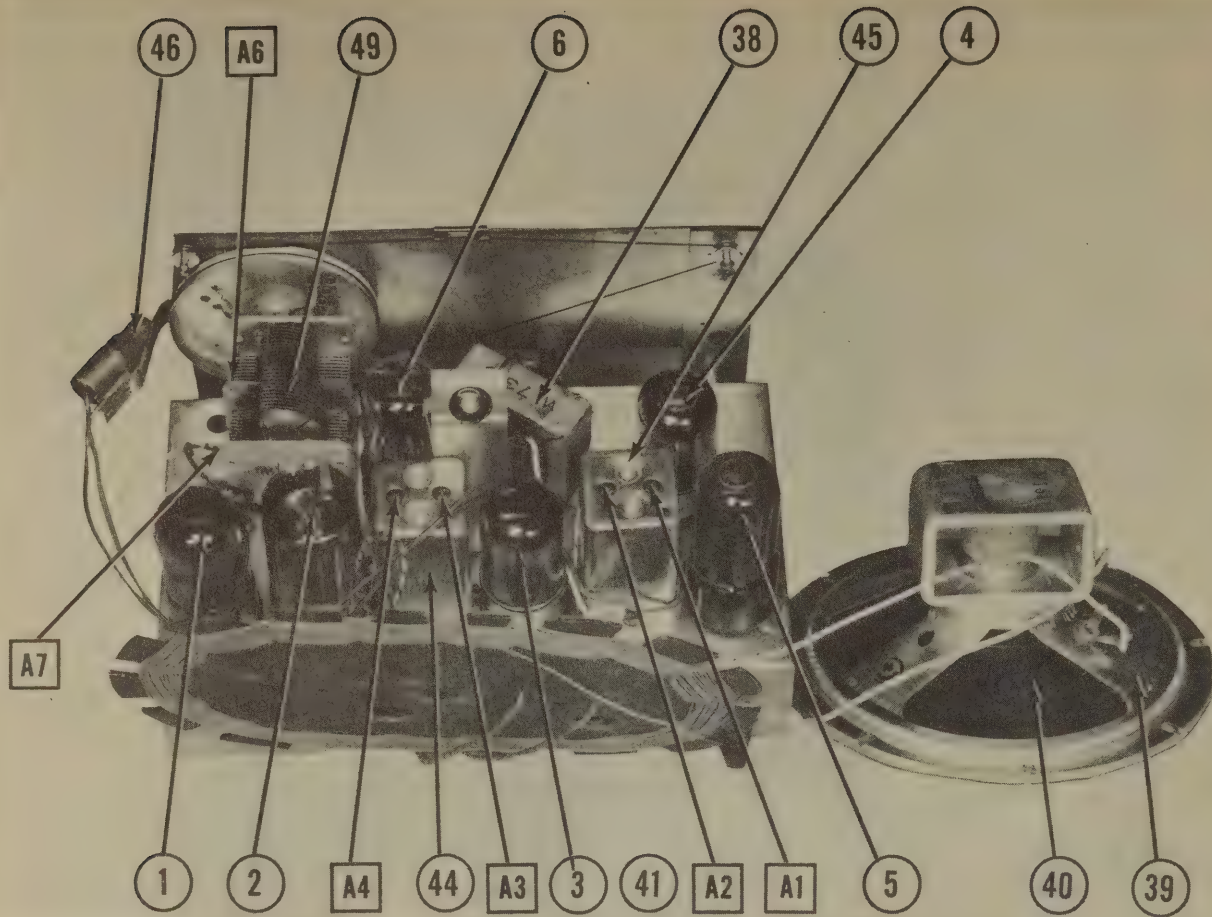
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		LEWYT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22A	RESIST. 500KΩ		MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 22A per instructions.
C	Switch		M26	41	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		LEWYT PART No.	MALLORY PART No.	IRC PART No.	
23	RESISTANCE 4700Ω			BTS-4700	Y1-V1-Red RF Plate Load
24	22KΩ			BTS-22K	Red-Red-Or. Oscillator Grid
25	100KΩ			BTS-100K	Br.-Blk.-Yl. Converter Grid
26	18 Meg.			BTS-18 Meg.	Br.-Gray-Blue AVC Network
27	2.2 Meg.			BTS-2.2 Meg.	Red-Red-Grn. 1st AF Grid
28	4.7 Meg.			BTS-4.7 Meg.	Red-Red-Grn. AVC Network
29	220KΩ			BTS-220K	Red-Red-Yl. 1st AF Plate Load
30	47KΩ			BTS-47K	Y1-V1-Or. Tone Compensation
31	470KΩ			BTS-470K	Y1-V1-Yl. Output Grid
32	150Ω			BW-150	Br.-Grn.-Br. Output Cathode
33	470KΩ			BW-470K	Y1-V1-Yl. Line Isolation
34	330Ω			BW-330	Or.-Or.-Br. Filter
35	1500Ω			BTA-1500	Red-Red-Grn. Phono Shunt
36	2.2 Meg.			BTS-2.2 Meg.	Br.-Blk.-Grn. Series Phono
37	1 Meg.			BTS-1 Meg.	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		LEWYT PART No.	STANCOR PART No.	
	PRI. SEC.	PRI. SEC.				
38	2800Ω	3.1Ω	400Ω	W73	A-3478*	* Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	LEWYT PART No.	JENSEN PART No.	
39	PM	3.1Ω	X123	ST-111 Mod. P6-U	
40	CONE DIA. 5-7/8"	VC DIA. 5/8"	NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT.		

R F COILS

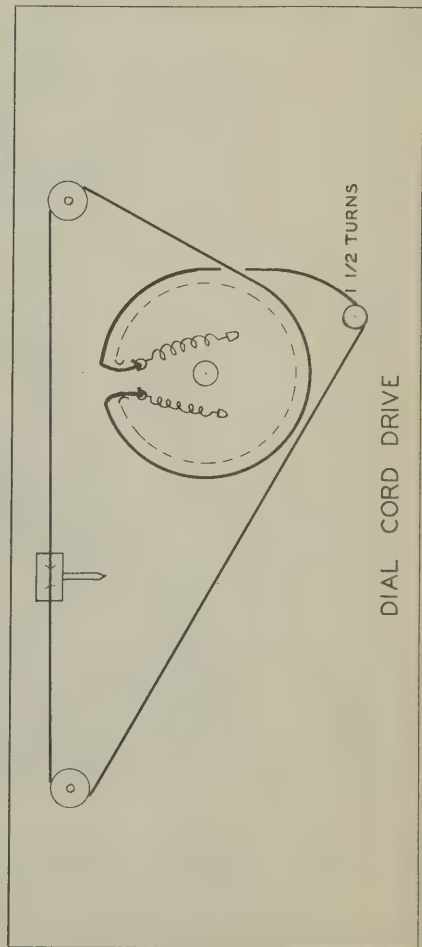
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	LEWYT PART No.	MEISSNER PART No.	
41	Loop	0Ω	1.5Ω	X75		
42	Wave Trap	50.5Ω	6Ω	W72		
43	Osc. Coil	16Ω	16Ω	W21	14-1040	
44	Input IF	25Ω		W19	16-6858	
45	Output IF				16-6870	

DIAL LIGHT

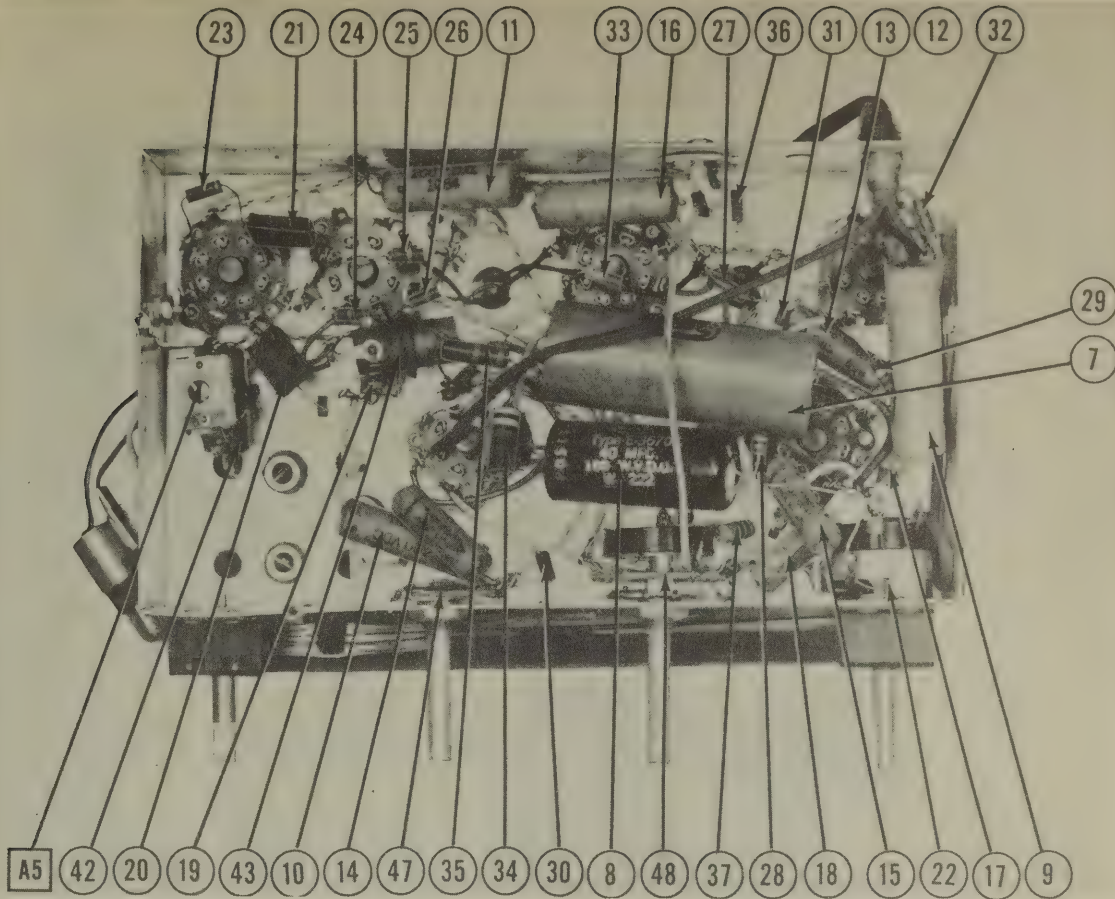
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	LEWYT PART No.	
46	Bayonet	6-8	0.15	BROWN		Type 47

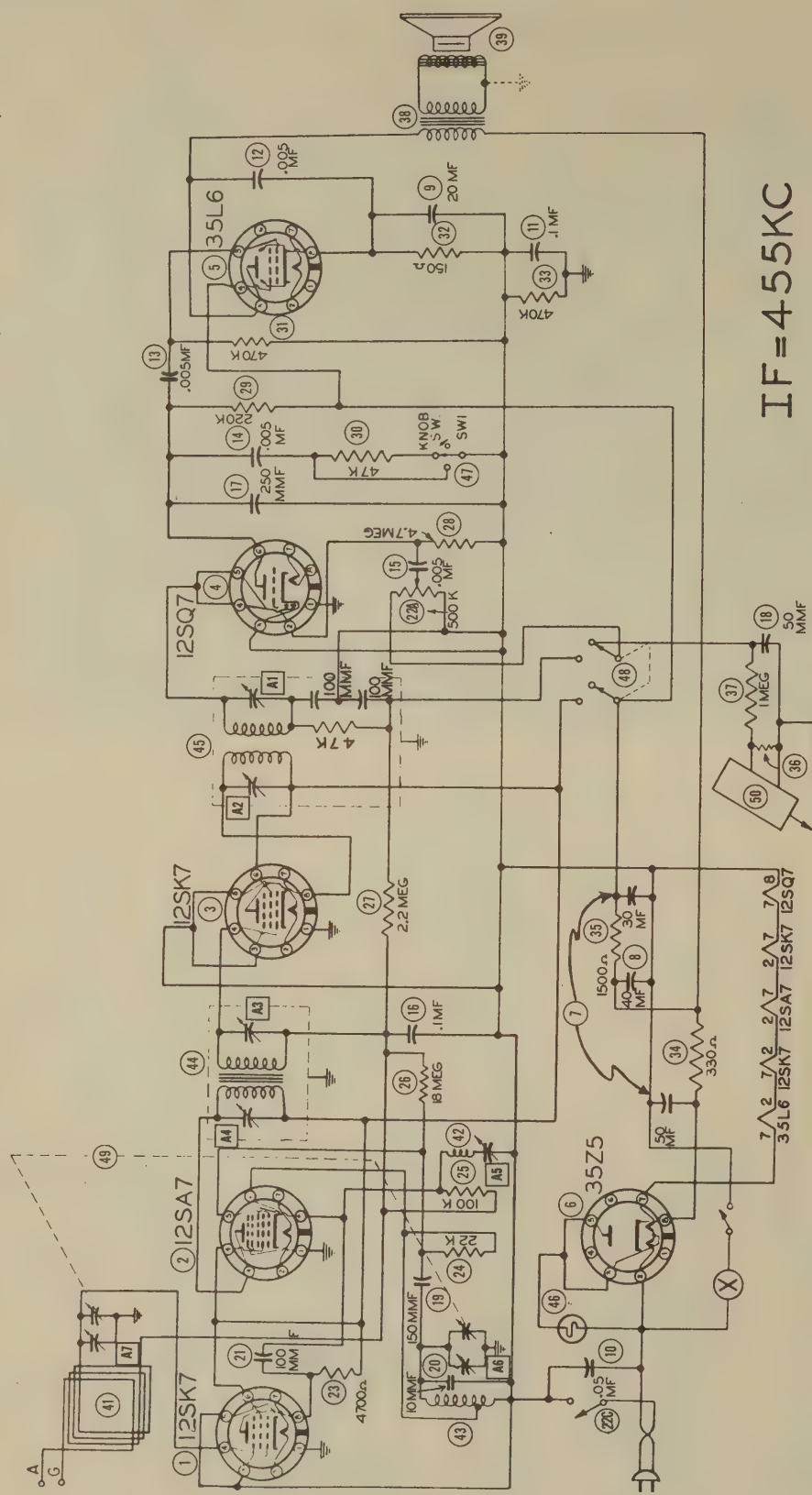
MISCELLANEOUS

ITEM No.	PART NAME	LEWYT PART No.	NOTES
47	Tone Switch	W70	1 Pole, 3 Position
48	Radio-Phono Sw.	W69	2 Pole, 2 Throw
49	2 Gang Var. Cap	W23	Ant. & Osc. Trimmers Incl.
50	Record Changer	W80	



CHASSIS—BOTTOM VIEW





IF=455KC

NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN RADIO POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V	24VAC	0V	68VDC	36VAC	37VDC		
2	12SA7GT	0V	12VAC	68VDC	0V	24VAC	-48VDC		
3	12SK7GT	0V	36VAC	0V	68VDC	50VAC	68VDC		
4	12SQ7GT	0V	-15VDC	0V	-45VDC	53VDC	12VAC		
5	35L6GT	0V	50VAC	93VAC	68VDC	0V	87VAC	4.3VDC	
6	35Z5GT	53VDC	117VAC	13VAC	68VDC	113VAC	87VAC	121VDC	

RESISTANCE READINGS

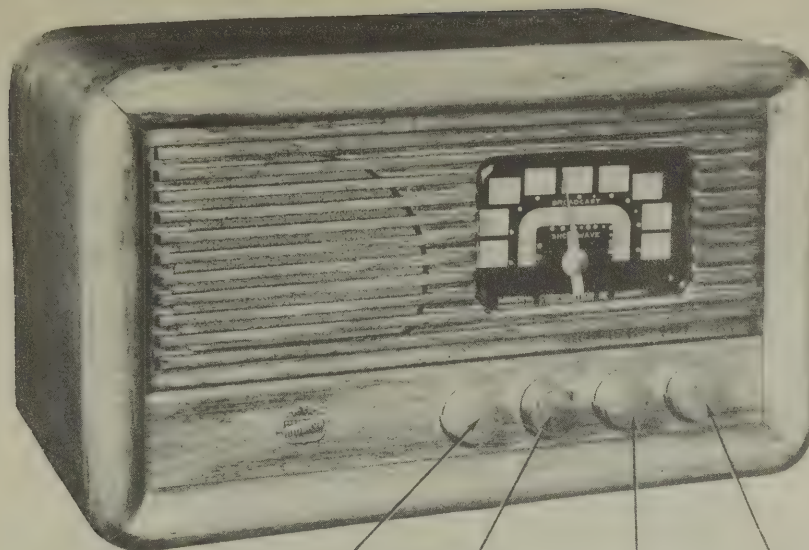
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	390KΩ	25Ω	70KΩ	2MEG	0Ω	70KΩ	37Ω	70KΩ
2	12SA7GT	390KΩ	13Ω	70KΩ	22KΩ	5Ω	25Ω	2MEG	
3	12SK7GT	390KΩ	37Ω	0Ω	2MEG	0Ω	70KΩ	48Ω	70KΩ
4	12SQ7GT	390KΩ	6MEG	0Ω	430KΩ	430KΩ	270KΩ	13Ω	0Ω
5	35L6GT	0Ω	48Ω	70KΩ	70KΩ	440KΩ	INF	78Ω	145Ω
6	35Z5GT	280KΩ	78Ω	98Ω	70KΩ	98Ω	70KΩ	105Ω	70KΩ

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MINERVA
MODEL W-117-3VOLUME CONTROL
ON-OFF SWITCH

TONE CONTROL

BAND SWITCH

TUNING CONTROL

MINERVA MODEL W-117-3

TRADE NAME Minerva Model W-117-3
 MANUFACTURER Minerva Corp. of America, 238 William St., New York, N.Y.
 TYPE SET AC Operated 2 Band Superheterodyne - Self Contained Loop Antenna
 TUBES (EIGHT) Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC, (2) 50A5 Power Output, (2) 35Z5GT Rectifier.

POWER SUPPLY 105-125 Volts AC-DC

RATING

.390 Amps. @ 117V AC

TUNING RANGE—BROADCAST 540-1640KC

SHORT WAVE

5.5 - 19 MC

ALIGNMENT INSTRUCTIONS

Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator to chassis. Volume control in maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 8 of 6SA7. Low side to chassis.	455KC	BC	High freq. end of dial. (Variable fully open)	Across voice coil	A1,A2, A3,A4	Adjust for maximum output
200 MMF.	High side to ext. ant. Low side to ext. ground.	1600KC	"	1600KC	"	A5	" " " "
200 MMF.	"	1400KC	"	Tune for maximum output.	"	A6	" " " "
200 MMF.	"	600KC	"	"	"	A7	Rock dial and adjust for maximum output. Recheck A5 at 1600KC and A6 at 1400KC.
400 ohms	"	18.0MC	SW	18.0MC	"	A8	Adjust for maximum output
400 ohms	"	15.0MC	"	Tune for maximum output.	"	A9	" " " "

MINERVA
MODEL W-117-3

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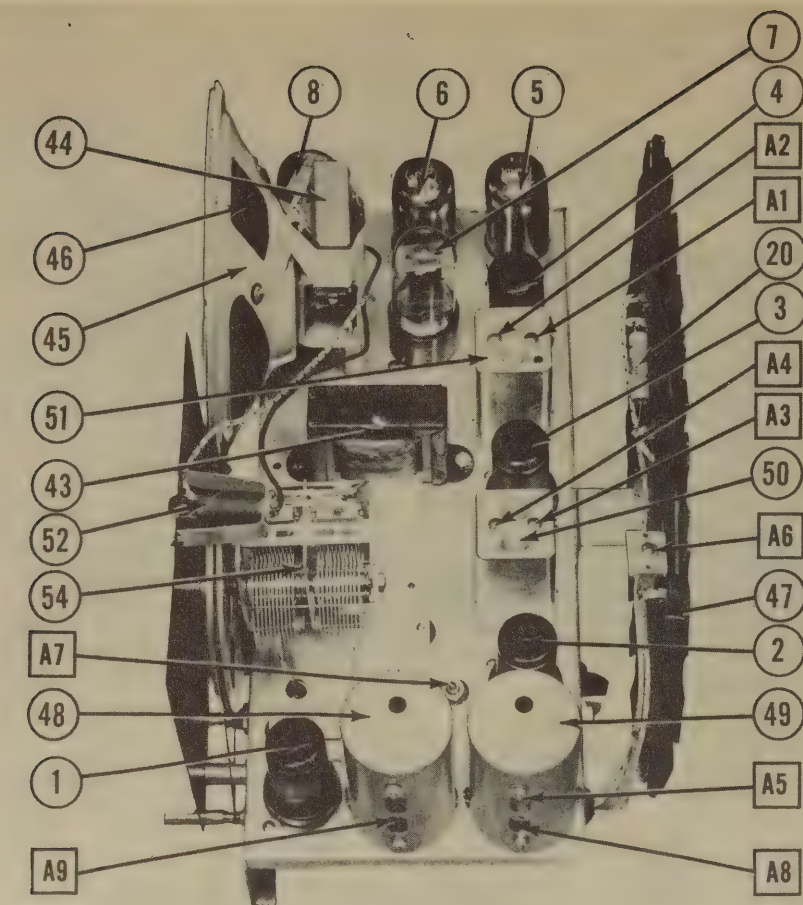
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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				CORNEIL-DUBILIER PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
		MINERVA PART No.	SOLAR PART No.	SPRAGUE PART No.	TA-4440			
9A	40 CAP. 150 VOLT		DSB-2x40-150		PRSA150-40-40	BRD44115	2N511	Filter - Red
10	.05		S-4-05	TC-15	484-05	DT435	TP426	Line Filter
11	.005		S-6-005	TC-25	694-005	DT8D5	TP408	Output Plate Bypass
12	.005		S-6-005	TC-25	694-005	DT8D5	TP408	"
13	.005		S-6-005	TC-25	694-005	DT8D5	TP408	Audio Coupling
14	.001		S-6-001	TC-21	694-001	DT8D1	TP404	"
15	.001		S-6-001	TC-21	694-001	DT8D1	TP404	Tone Compensation
16	.005		S-6-005	TC-25	694-005	DT8D5	TP408	Audio Coupling
17	.005		S-6-005	TC-25	694-005	DT8D5	TP408	RF Bypass Pwr. Supp.
18	.25		S-4-25	TC-2	484-25	DT435	TP426	AVC Filter
19	.05		S-4-05	TC-11	484-05	DT435	TP426	Ant. Coupling
20	.01		S-4-01	TC-11	484-01	DT435	TP426	"
21	100		MO.5-31	1FM-31	1468-0001	5W5T1	MC241	RF Bypass Audio Grid
22	300		MO.5-33	1FM-33	1468-0003	5W5T3	MC241	IF Bypass Diode
23	100		MO.5-31	1FM-31	1468-0001	5W5T1	MC241	Osc. Grid Capacitor
24	300		MO.5-33	1FM-33	1468-0003	5W5T3	MC241	RF Coupling
25	5000							Fixed Padder Cer. *

*Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				CLAROSTAT PART No.	INSTALLATION NOTES
		MINERVA PART No.	MALLOY PART No.	IRC PART No.	M-60-Z		
26A	500KΩ 1		Not Req.	D13-133	Not Req.		Volume Control
27A	500KΩ 1		Not Req.	D13-133	Not Req.		Attach to 26A per instructions
28	500KΩ 1		Not Req.	D13-133	Not Req.		Tone Control
29	500KΩ 1		Not Req.	D13-133	Not Req.		Attach to 27A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		MINERVA PART No.	MALLOY PART No.	IRC PART No.	Y1-VI-4700	
28	470KΩ			BTS-4700	Y1-VI-4700	Y1-VI-4700
29	470KΩ			BTS-4700	Y1-VI-4700	Y1-VI-4700
30	150KΩ			BTS-1500	Y1-VI-1500	Y1-VI-1500
31	20KΩ			BTS-22K	Y1-VI-22K	Y1-VI-22K
32	300Ω			BTS-300	Y1-VI-300	Y1-VI-300
33	2.2 Meg.			BTS-2.2 Meg.	Y1-VI-2.2 Meg.	Y1-VI-2.2 Meg.
34	47KΩ			BTS-47K	Y1-VI-47K	Y1-VI-47K
35	10 Meg.			BTS-10 Meg.	Y1-VI-10 Meg.	Y1-VI-10 Meg.
36	220KΩ			BTS-220K	Y1-VI-220K	Y1-VI-220K
37	470KΩ			BTS-470K	Y1-VI-470K	Y1-VI-470K
38	470KΩ			BTS-470K	Y1-VI-470K	Y1-VI-470K
39	470KΩ			BTS-470K	Y1-VI-470K	Y1-VI-470K
40	100KΩ			BTS-100K	Y1-VI-100K	Y1-VI-100K
41	150Ω			BW-1-150	Y1-VI-150	Y1-VI-150
42	150Ω			BW-1-150	Y1-VI-150	Y1-VI-150

Note 1 - Not used in all models.

PARTS LIST AND DESCRIPTIONS (Continued) FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	TOTAL DIRECT CURRENT	INDUCTANCE (10 CURRENT 1000~)	MINERVA PART No.	THORDARSON PART No.	
43	.130 A. 125Ω	4 Henries	C-2303	T20654†	†Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE PRI. SEC.	DC RES. PRI. SEC.	MINERVA PART No.	THORDARSON PART No.	
44	3500Ω 2.7Ω CT	150Ω .5Ω CT	A-3823†	T22847	†Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD PM	VC IMP.	MINERVA PART No.	JENSEN PART No.	
45	6-1/16"	1/2"	Mod. P8-X	ST-108	
46	NOT READILY REPLACABLE—USE COMPLETE SPEAKER UNIT.				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	MINERVA PART No.	MEISSNER PART No.	
47	Loop Ant. SW Ant. Coil	.5Ω	3.5Ω	5-34		
48	49A BC Osc. Coil	.5Ω	Ω	5-33		
49	B SW " "	5.5Ω	Ω	5-25		
50	Input IF	16Ω	16Ω	20-5	16-6662	Items 49A & 49B in same shield
51	Output IF	14.5Ω	15Ω	20-6	16-6663	

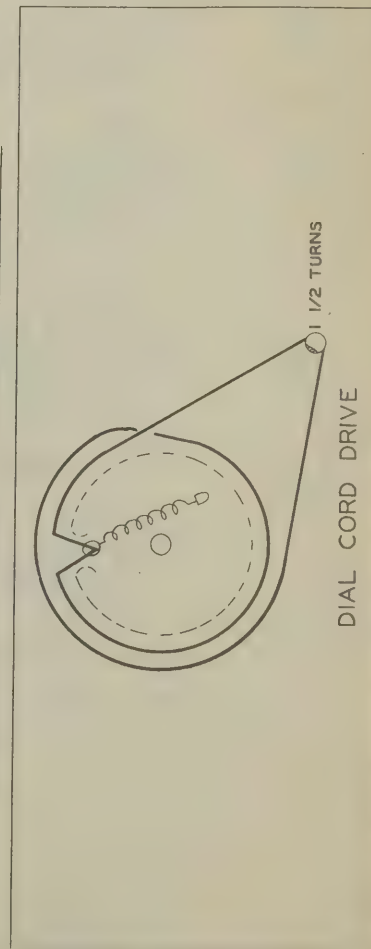
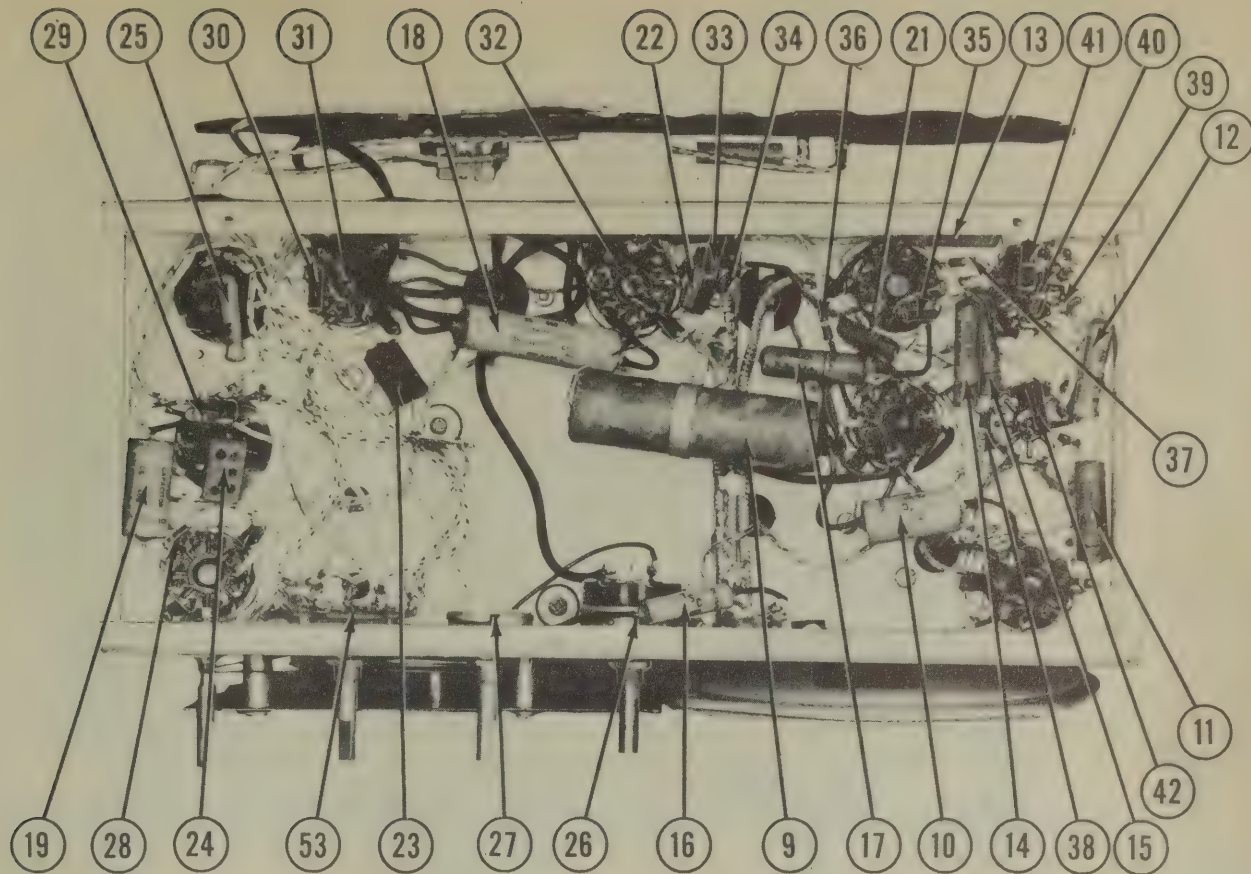
DIAL LIGHT

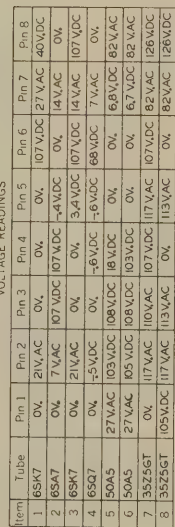
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	MINERVA PART No.	
52	Bayonet	6-8	0.15	brown		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
53	Band Switch	25-12	
54	Tuning Cap.		2 Gang Var. Cap.

CHASSIS—BOTTOM VIEW





471-14

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Voltage control at maximum, no signal applied for voltage measurements.

VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

MINERVA MODELS L-728, W-728

MINERVA
MODELS L-728, W-728

TRADE NAME	Minerva Models L-728, W-728
MANUFACTURER	Minerva Corp. of America, 238 William St., New York, N.Y.
TYPE SET	AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE)	Types, 14Q7 Converter, 14A7 or 7B7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Z5GT Rectifier (Model L-728) - Types, 12SA7, 12SK7, 12SQ7, 50L6GT, 35Z5GT respectively (Model W-728).
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1720KC
	RATING .257 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

Use isolation transformer if available. If not connect a capacitor in series with low side of signal generator and chassis. To set pointer turn variable fully closed and adjust pointer to 1st mark on left end of dial backplate. Volume control should be at maximum and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screw-driver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stat. of front section of variable. Low side to chassis.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
200 MMFD	High side to ext. ant. lead. Low side to chassis.	1500KC	Second mark from right end of dial backplate.	"	A5	Adjust for maximum output.
200 MMFD	"	"	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MINERVA PART No.	STANDARD REPLACEMENT		
1A	Converter	14Q7	14Q7	8AL	Lock-In
2A	IF Converter	12SA7	12SA7	8R	Octal
3A	IF Amp.	14A7 or 7E7	14A7 or 7E7	8V	
4A	Det.-AVC-AF	12SK7	12SK7	8M	
5A	Det.-AVC-AF	14B6	14B6	8Q	
6A	Power Output	12SQ7	12SQ7	8Q	
7A	Power Output	50A5	50A5	6A	
8A	Rectifier	50L6GT	50L6GT	7AC	
9A	Rectifier	35Y4	35Y4	5AL	
10A	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MINERVA PART No.	SOLAR PART No.	SPRAGUE PART No.	AERVOX PART No.	
6A	30		DSB-2X30-150	TA-330	PRS150-30	Filter
7A	30		UT-30-150		PRS150-30	"
8A	30		S-4-05	TC-15	484-05	Line Filter
9A	30		S-4-01	TC-11	684-01	Output Plate Bypass
10A	30		S-6-01	TC-11	684-01	Audio Coupling
11A	30		S-6-02	TC-12	684-02	"
12A	30		S-4-05	TC-15	484-05	RF Bypass Pwr. Supp.
13A	30		S-4-05	TC-15	484-05	AVC Filter
14A	30		M-5-325	LFM-325	1468-00025	Tone Compensation
15A	30		M-5-325	LFM-325	1468-00025	IF Bypass Vol. Cont.
16A	30		M-5-31	LFM-31	1468-0001	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MINERVA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	500KΩ	34-1A	MR48	D13-133	M-80-Z	Volume Control
17A	500KΩ	Not Req.	Not Req.	A	Not Req.	Attach to 16A per instructions
18A	500KΩ	Not Req.	Not Req.	41	SW-A	"

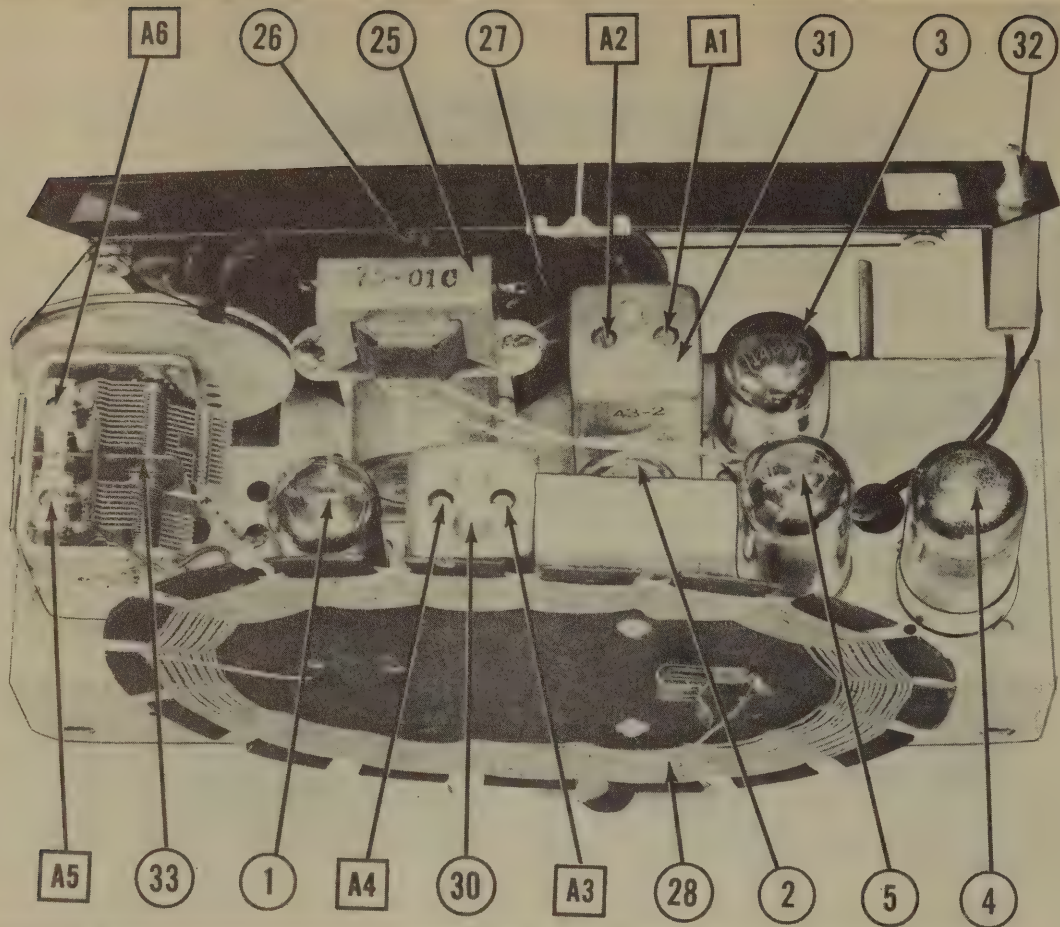
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		MINERVA PART No.	IRC PART No.	
17	22KΩ		BTS-22K	Red-Red-Or. Oscillator Grid
18	4.7 Meg.		BTS-4.7 Meg.	Yl.-Vl.-Grn. AVC Network
19	10 Meg.		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
20	270KΩ		BTS-270K	Red-Vl.-Yl. 1st AF Plate Load
21	470KΩ		BTS-470K	Yl.-Vl.-Yl. Output Grid
22	130KΩ		BW-1-120	Br.-Or.-Br. Output Cathode
23	330KΩ		BW-2-330	Or.-Or.-Br. Filter
24	330KΩ		BW-2-330	Or.-Or.-Br. Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		MINERVA PART No.	STANCOR PART No.	
25	2000Ω	3.3Ω	180Ω		A-3876	T22845

CHASSIS—TOP VIEW



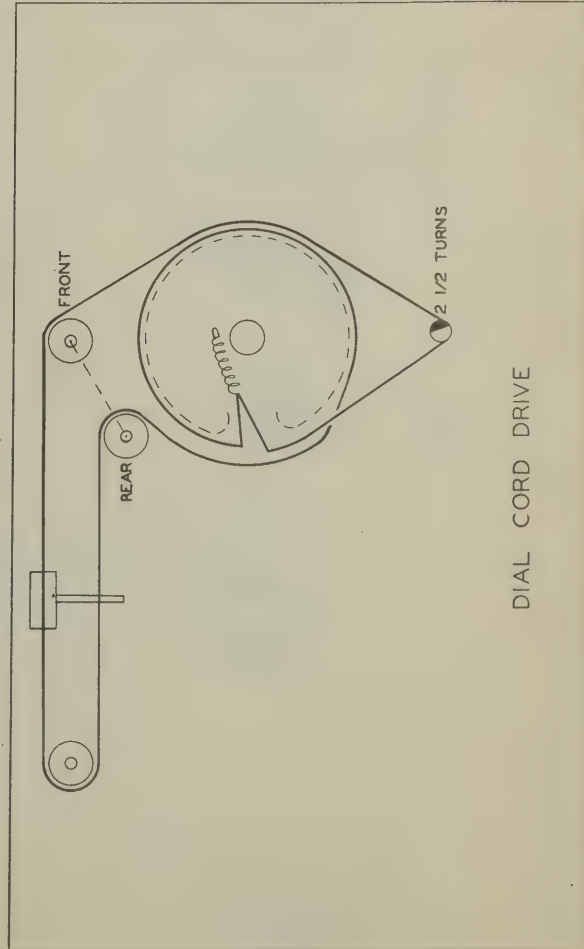
PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER				
ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		MINERVA PART No.	JENSEN PART No.	
26	FIELD VC IMP. PM 3-30		ST-107* Mod. PS-V	*Fabricate new mounting bracket.
27	CONE DIA. VC DIA. 4-3/4" 1/2"			NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT

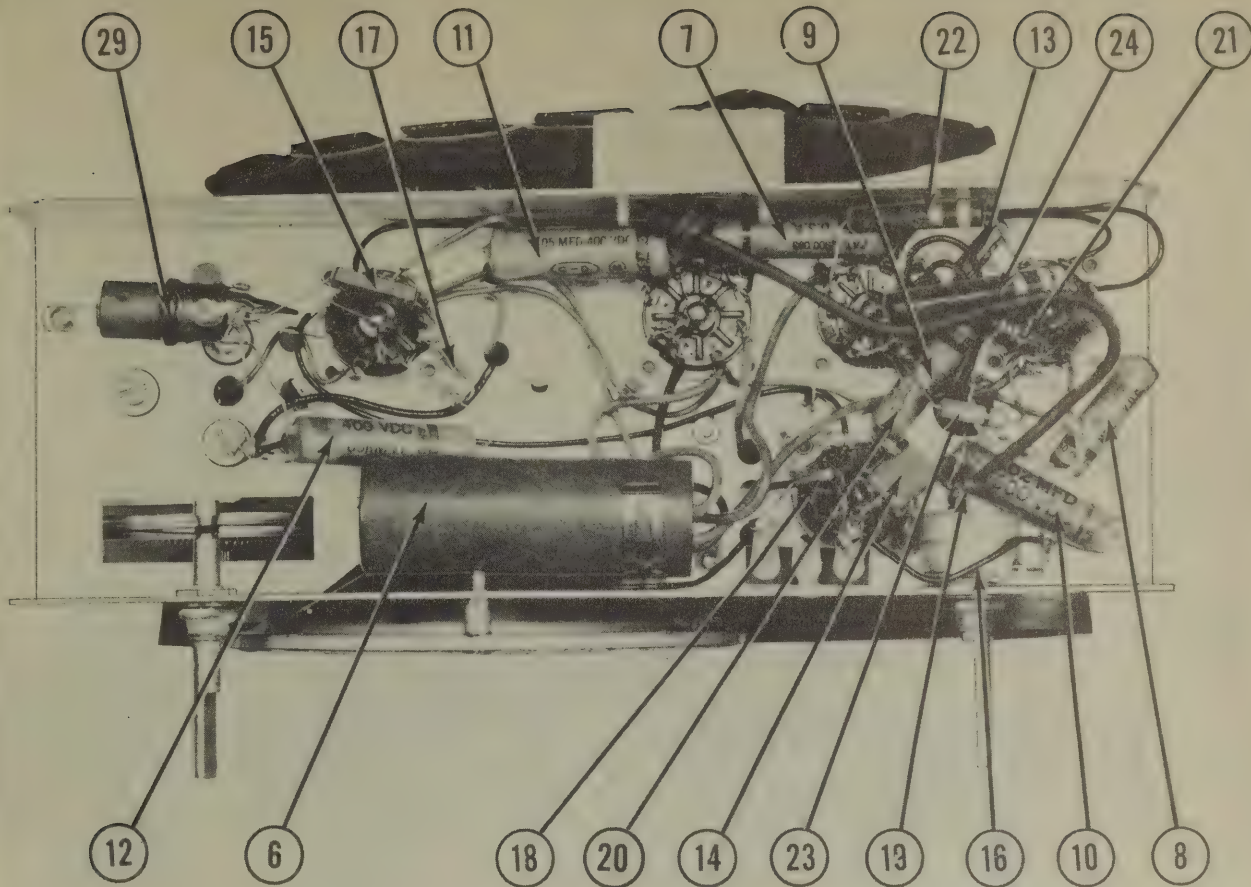
R F COILS				
ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		MINERVA PART No.	MEISSNER PART No.	
28	Loop Ant.	5-45	14-1040	
29	Osc. Coil	5-44	18-8858	
30	Input IF	20-24	19-8660	
31	Output IF	20-25		

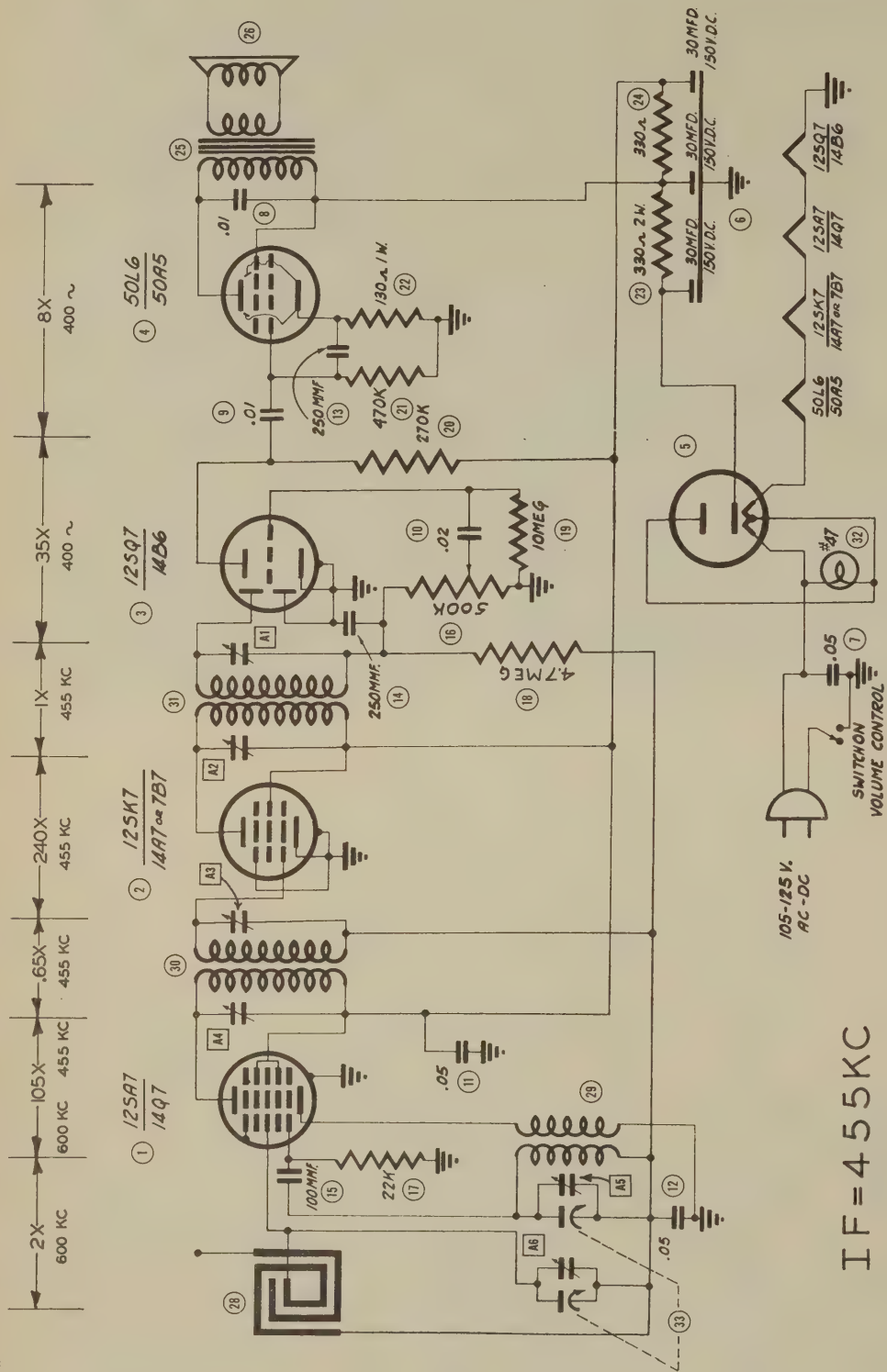
DIAL LIGHT				
ITEM No.	BASE TYPE	VOLTS	AMPS.	INSTALLATION NOTES
32	bayonet	3-8	0.15	Type 47

MISCELLANEOUS			
ITEM No.	PART NAME	MINERVA PART No.	NOTES
33	Tuning Cap.	25-20	2 Gang Var. Cap.



CHASSIS—BOTTOM VIEW





IF = 455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	22 V AC	90 V DC	90 V DC	-6 V DC	0 V	-2 V DC	0 V	10 V AC
2	14A7	34 V AC	90 V DC	90 V DC	0 V	0 V	-2 V DC	0 V	22 V AC
3	14B6	10 V AC	62 V DC	-6 V DC	0 V	0 V	-6 V DC	0 V	0 V
4	50A5	77 V AC	92 V DC	90 V DC	98 V DC	0 V	0 V	5 V DC	34 V AC
5	35Y4	117 V AC	113 V AC	90 V DC	113 V AC	0 V	0 V	117 V DC	77 V AC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

RESISTANCE READINGS

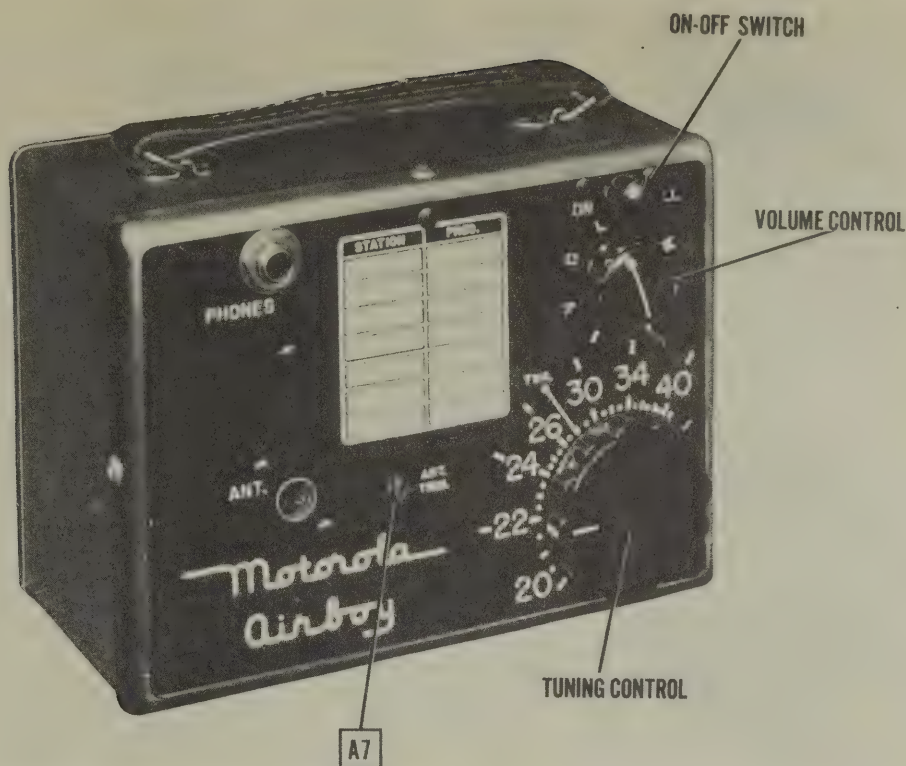
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	24 K	50 K	50 K	19 K	0	4.5 MEG	.5	12
2	14A7	34	50 K	50 K	50 K	0	4.5 MEG	0	24
3	14B6	12	320 K	7.5 MEG	0	0	500 K	0	0
4	50A5	75	50 K	50 K	50 K	0	500 K	115	34
5	35Y4	100	96	50 K	96	INF	0	50 K	75

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

471-15

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MOTOROLA
MODEL AR-96-23



MOTOROLA
MODEL AR-96-23

MOTOROLA MODEL AR-96-23

TRADE NAME Motorola, Model AR-96-23 (Airboy) MANUFACTURER Galvin Mfg. Corp., 4545 Augusta Blvd., Chicago, Ill. TYPE SET Battery Operated Aircraft Superheterodyne Receiver TUBES (FOUR) Types, 1R5 Osc.-Mod., 1T4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output POWER SUPPLY 1½ Volt Battery (2-Flashlight Cells) and 67½ Volt "B" Battery RATING 250 MA. @ 1½ Volts DC and 8.5MA @ 67½ Volts DC (Eveready Battery No. 467 or equiv.) TUNING RANGE-BROADCAST 200-410KC						
ALIGNMENT INSTRUCTIONS Set volume control at maximum volume and keep output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST.	REMARKS
.1 MFD.	High side to station rear section variable. Low side to chassis.	465KC	Variable fully open.	Paralleled with 600Ω across phone jack.	A1,A2, A3.	Adjust for maximum output.
200 MMF.	High side to ext. ant. terminal. Low side to chassis.	200KC	200KC	"	A4.	" " " "
200 MMF.	High side to ext. ant. terminal. Low side to chassis.	220KC	220KC	"	A5.	" " " "
200 MMF.	"	400KC	400KC	"	A6	Rock variable and adjust for maximum output.
200 M4F.	"	380KC	380KC	"	A7	Adjust for maximum output.
200 MMF.	"	400KC	400KC	"	A6	Rock variable and adjust for maximum output.

FOR MAXIMUM ACCURACY REPEAT ABOVE STEPS.

HOWARD W. SAMS & CO., INC.

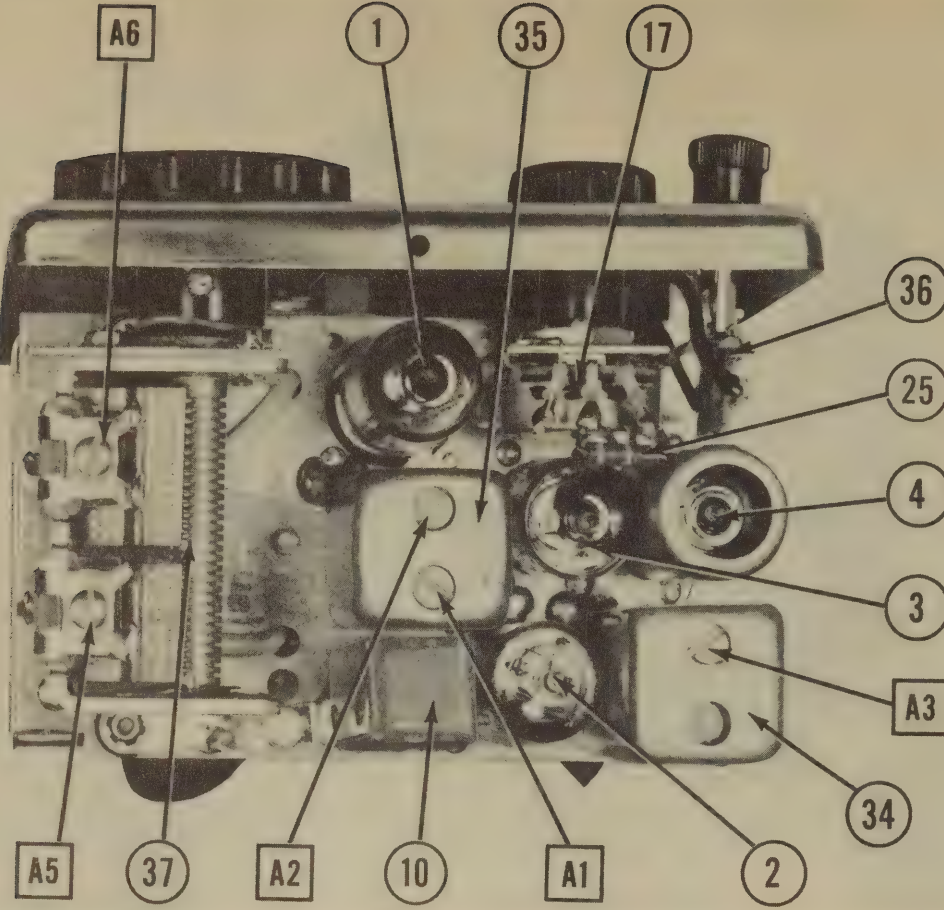
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Indianapolis Indiana

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	MOTOROLA PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNEILL-DUBILIER PART No.	MALLORY PART No.		
5	10	150	23A14727	M-10-150	UT-121	PRS150-12	BR1215	TC42	Pwr. Supp. Bypass	
6	.005	100	8A24966	TTF-1-005			ZY2D6	MT115	Output Plate Bypass	
7	.005	100	8A24966	TTF-1-005			ZY2D6	MT115	audio Coupling	
8	.005	100	8A24966	TTF-1-005			ZY2D6	MT115	"	
9	.02	100	8A25558	TTF-1-02			ZY1S2	MT127	IF Screen Bypass	
10A	.02	100	8K25549	TTF-1-02			ZY1S2		Bypass Block	
B	.05	100		TTF-1-05			ZY1S5		"	
C	.02	100		TTF-1-02			ZY1S2		"	
D	.02	100		TTF-1-02			ZY1S2		"	
11	.02	100	8A25558	TTF-1-02			ZY1S2	MT127	audio. Coupling	
12	100	300	21R6631	MMA-1-31					audio Plate Bypass	
13	100	300	21R6631	MMA-1-31					IF Bypass Diode	
14	50	500	21K35392						Osc. Grid Capacitor	
15	20	500	21K31492						Fixed Trimmer	
16	30	500	21K33815						Cer. Cap.	

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				RATING		REPLACEMENT DATA		IDENTIFICATION CODES AND INSTALLATION NOTES	
		RESISTANCE	WATTS	MOTOROLA PART No.	CLAROSTAT PART No.	RESISTANCE	WATTS	MOTOROLA PART No.	CLAROSTAT PART No.		
17	1 Meg.	1	1	16A24918						Volume Control	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
		RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.		
18	1 Meg.	1	1	6R6004	BTS-1 Meg.					Br.-Blk.-Grn. AVC Network	
19	1 Meg.	1	1	6R6004	BTS-1 Meg.					Br.-Blk.-Grn. AVC Network	
20	100K	100K	1	6R6031	BTS-100K					Br.-Blk.-Yl. Oscillator Grid	
21	600K	600K	1	6R6028	BTS-600K					Blue-Gray-Red Voltage Dropping	
22	3.3 Meg.	3.3 Meg.	1	6R2118	BTS-3.3 Meg.					Or.-Gr.-Grn. AVC Network	
23	220K	220K	1	6R2118	BTS-220K					Red-Red-Red If Screen Dropping	
24	4.7 Meg.	4.7 Meg.	1	6R2122	BTS-4.7 Meg.					Yl.-Yl.-Grn. 1st AF Screen Dropping	
25	470K	470K	1	6R6032	BTS-470K					Yl.-Yl.-Grn. 1st AF Screen Dropping	
26	10 Meg.	10 Meg.	1	6R2109	BTS-10 Meg.					Br.-Blk.-Blue 1st AF Grid	
27	1 Meg.	1 Meg.	1	6R6004	BTS-1 Meg.					Br.-Blk.-Grn. Diode Load	
28	1 Meg.	1 Meg.	1	6R6004	BTS-1 Meg.					Br.-Blk.-Grn. 1st AF Plate Load	
29	3.3 Meg.	3.3 Meg.	1	6R2118	BTS-3.3 Meg.					Or.-Gr.-Grn. Output Grid	
30	820K	820K	1	6R6059	BTS-820K					Gray-Red-Br. Bias	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES	
	IMPEDANCE	DC RES.	PRI. SEC.	PRI. SEC.	MOTOROLA PART No.	STANCOR PART No.	THORDAR'N PART No.	THORDAR'N PART No.		
31	7500Ω	600Ω	720Ω	60Ω	25A51574	A-3678*	T22543*		*Drill one new mounting hole.	

PARTS LIST AND DESCRIPTIONS (Continued)
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
32	Ant. Coil	60	350	24A51564		
33	Osc. Coil	250	250	24A51568		
34	Input IF	13.50	13.50	1A24889		
35	Output IF	170	12.00	1A24385		

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
36	On-Off Switch	40A54549	DPS
37	2 var. Var. Cap.	19K34049	Use. & Art. Trimmer Included
A4	Trimmer	20A51567	Osc. Padder (Nom. 100 pF)
A7	Phone Jack	20K51566	Ant. Loading (300-800 pF)
	Switch Knob	9K45029	Open Circuit type
	Tuning Knob	38A54540	
	Volume Knob	38A51604	
	Headphones	38A51605	
		50C54616	HS-23

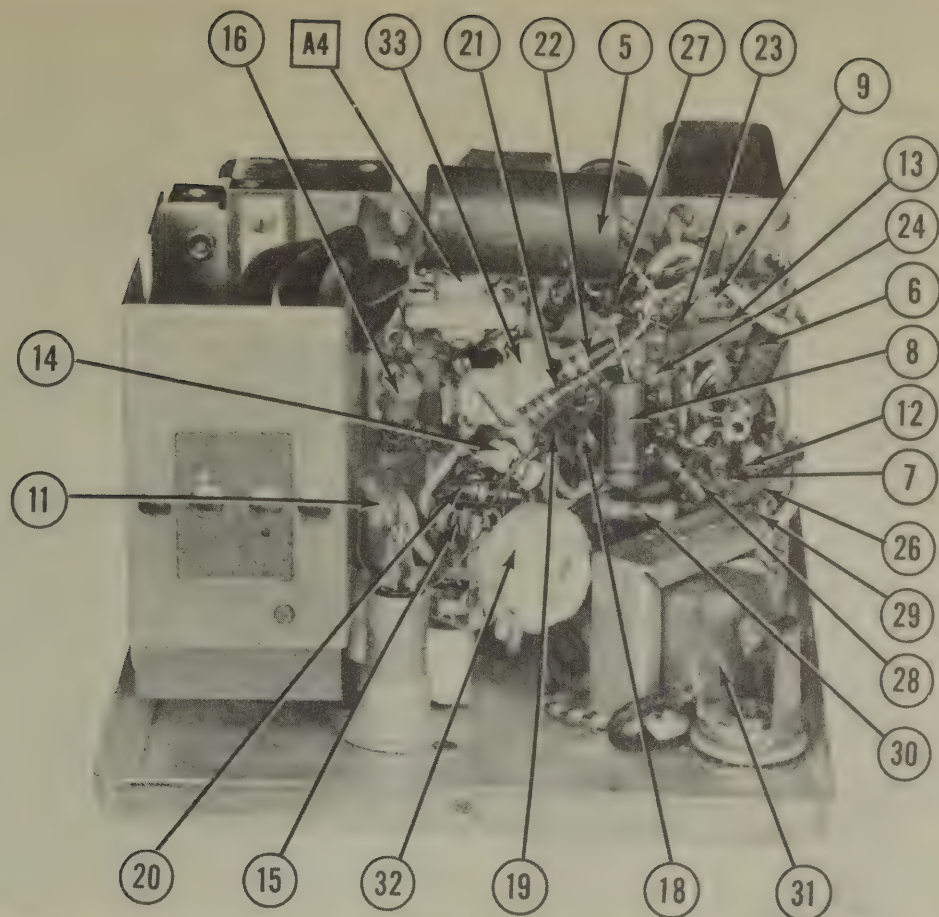
REMOVING CHASSIS FROM HOUSING

1. Unlatch back cover and remove.
 2. Remove "A" AND "B" batteries.
 3. Remove the three Phillips head screws, which fastens the front panel.
 4. Remove chassis locking screw.
 5. The front panel and chassis may now be removed from the wrap-around housing.
- NOTE:
- (a) When replacing chassis be sure to place the tube retainer and cardboard packing if removed.
 - (b) Do not remove tape from housing, as it serves as insulation.

REMOVING CHASSIS FROM FRONT PANEL

1. Remove tuning and volume control knobs; don't lose the two cork washers and spring washer under tuning knob. When replacing, the spring washer is between the cork washers.
2. Remove knob from ON-OFF switch. This knob is threaded. Remove by turning to the left.
3. Remove the following wires:
 - a. The red and blue leads of the output transformer from the 3S4 tube socket.
 - b. The three leads to the ON-OFF switch.

CHASSIS—BOTTOM VIEW





VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

OLYMPIC MODEL 6-606-A

TRADE NAME	Olympic, Model 6-606-A
MANUFACTURER	Olympic Radio & Television Corp., 3101-19 38th Ave., Long Island City, N.Y.
TYPE SET	Three Power Portable Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (SIX)	Types, 1LN5 RF Amp., 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 3Q5GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC or DC or 9 Volts "A" Battery and 90 Volts "B" Battery (2-4½ V. "A" Batt.-Eveready #746 or Equiv. and 2-45 V. "B" Batt.-Eveready #482 or Equiv.)
RATING	.255 Amp. @ 117 Volts AC or 52 MA @ 9 Volts DC and 12 MA @ 90 Volts
TUNING RANGE-BROADCAST	530-1700KC

ALIGNMENT INSTRUCTIONS

To set pointer, turn variable fully closed and set pointer at the last reference mark at the left end of the dial. Use battery power for alignment whenever possible. If a-c power is used, use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and chassis. Set volume control at maximum volume and keep input from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of front section of variable. Low side of chassis.	455KC	High freq. end.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If a-c power is used without an isolation transformer, reduce dummy to 200 MMF. to reduce hum modulation.
500 MMF.	High side to ant. terminal. Low side to ext. ground terminal.	1500KC	1500KC	"	A5	Adjust for maximum output.
50 MMF.	"	1500KC	Tune for maximum output.	"	A6,A7.	" " " "
50 MMF.	"	600KC	"	"	A8	Rock variable and adjust for maximum output. Recheck A5, A6, and A7 at 1500KC.

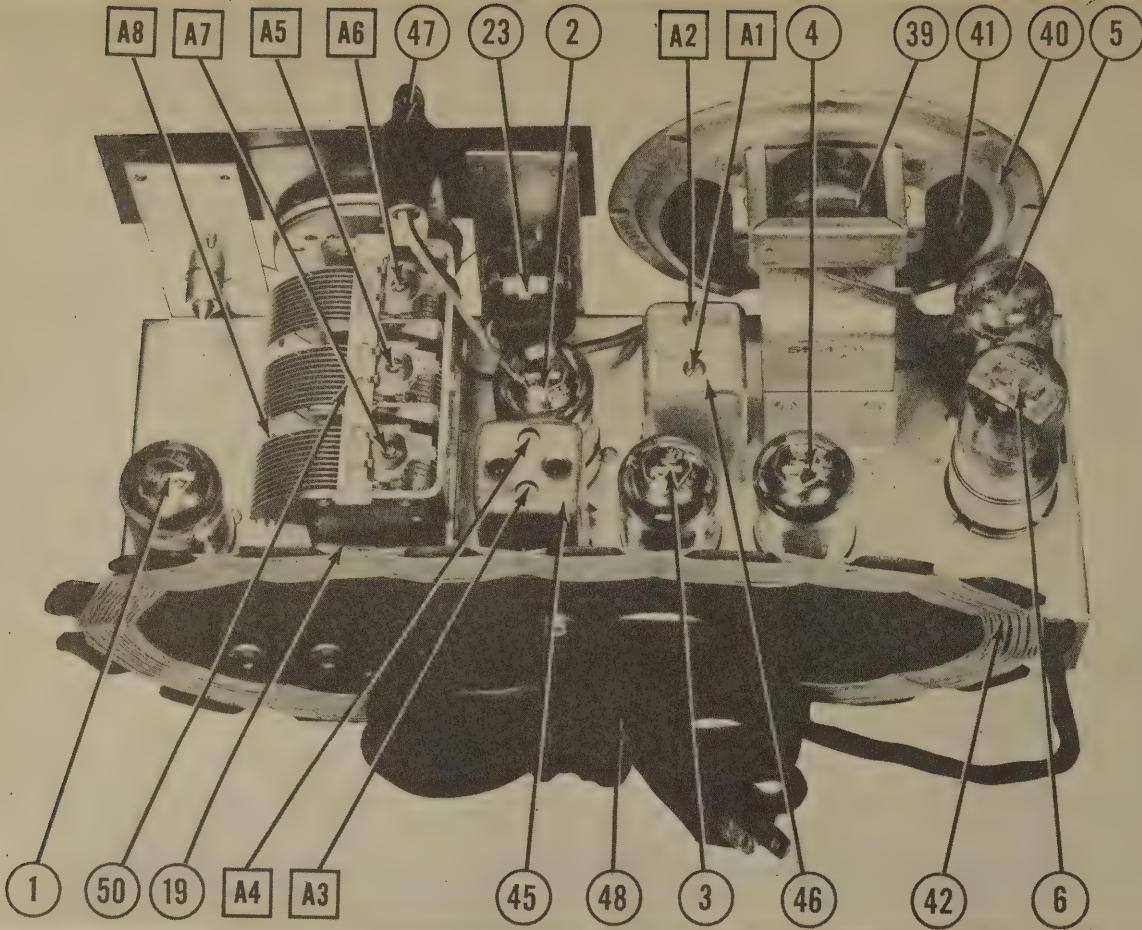
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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW



ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		OLYMPIC PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	1LN5	1LN5	7A0	
2	Converter	1LA6	1LA6	7AK	
3	IF Amp.	1LN5	1LN5	7A0	
4	Det.-AVC-AF	1LH4	1LH4	5AG	
5	Power Output	3Q5GT	3Q5GT	7AP	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		OLYMPIC PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	80 CAP.	CO-182	DSB-8040-150	EL-351		2N5111 Filter - Blue TC44
B	20		D4F-100-15	UT-201		TC2501 Fil. bypass-Yellow
C	150		M-50-25	TA-50		TC29 Filament Bypass
8	50		CO-808	484-1	PRS25-50	TP428 Pwr. Supp. Bypass
9	1		RCF10W4503AS-4-1	TC-1	484-05	TP426 Line Filter
10	.05		RCF10W4503AS-4-05	TC-15	684-005	TP408 Output Plate Bypass
11	.005		RCF10W4503AS-6-005	TC-25	884-01	TP410 Audio Coupling
12	.01		RCF10W4503AS-6-01	TC-11	884-005	TP408
13	.005		RCF10W4503AS-6-005	TC-25	484-05	TP408
14	.05		RCF10W4503AS-4-05	TC-15	884-01	TP426
15	.01		RCF10W4503AS-6-01	TC-11	884-01	TP410
16	.01		RCF10W4503AS-6-01	TC-11	884-01	TP410
17	.05		RCF10W4503AS-4-05	TC-15	484-05	TP426
18	.01		RCF10W4503AS-6-01	TC-11	884-01	TP410
19	.01		RCF10W4503AS-6-01	TC-11	884-01	TP410
20	100		RCF220A101M NO.5-31	LFY-31	1468-0001	MC235 Ext. Ground Isolation
21	47		RCM20A470M NO.5-45	LFY-45	1468-00005	MC225 Osc. Grid Capacitor
22	1		RCF20A100M NO.5-41	LFY-41	1468-00001	MC215 Fixed Trimmer *

*Not used in all models.

†Parallel section to obtain desired capacity.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		OLYMPIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
23A	1 RESIST.	PT-576	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft	Not Req.	Not Req.	E	KSC-3	Attach to 23A per instructions
C	Switch		M27	42	SW-42	"

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		OLYMPIC PART No.	IRC PART No.	IRC PART No.	
24	1 Meg.	REB105M	BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
25	2.2 Meg.	REB225M	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn. " "
26	3.3 Meg.	REB335M	BTS-3.3 Meg.	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
27	680Ω	REB681M	BTS-680	BTS-680	Blue-Gray-Br. Filament String
28	220KΩ	REB224M	BTS-220K	BTS-220K	Red-Red-Yl. Oscillator Grid
29	33KΩ	REB335M	BTS-33K	BTS-33K	Or.-Or.-Grn. Converter Screen Dropping
30	100KΩ	REB102M	BTS-100K	BTS-100K	Br.-Blk.-Red Filament String
31	6.8 Meg.	REB685M	BTS-6.8 Meg.	BTS-6.8 Meg.	Blue-Gray-Grn. 1st AF Grid
32	1 Meg.	REB105M	BTS-1 Meg.	BTS-1 Meg.	Red-Red-Grn. 1st AF Plate Load
33	2.2 Meg.	REB225M	BTS-2.2 Meg.	BTS-2.2 Meg.	Br.-Grn.-Grn. Output Grid
34	150KΩ	REB152M	BTS-150K	BTS-150K	Filament String-See Note 1
35	260Ω	RE-407	ABA-3000	ABA-3000	Filament String-See Note 1
36	27Ω	REB270K	EW-2-27	EW-2-27	Red-Red-Red-Red-Red
37	220KΩ	RED101M	ET-2-2200	ET-2-2200	Red-VI.-Blk. Surge Limiter
38	100Ω		EW-2-100	EW-2-100	Br.-Blk.-Br. Pilot Light Shunt

Note 1 - On IRC Replacement Set Slider at 2600Ω from one end.

PARTS LIST AND DESCRIPTIONS (Continued) **TRANSFORMER (OUTPUT)**

ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	OLYMPIC PART No.	THORDARN PART No.			
39	70.0Ω	3.5Ω	460Ω	.5Ω	Part of SK-476	T22547	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	OLYMPIC PART No.	JENSEN PART No.	
40	3.5Ω	ST-108*	SK-476	Mod. P5-W	*Fabricate new mounting bracket.
41	4-5/8"	1/2"	NOT READILY REPLACEABLE	USE COMPLETE SPEAKER UNIT.	

R F COILS

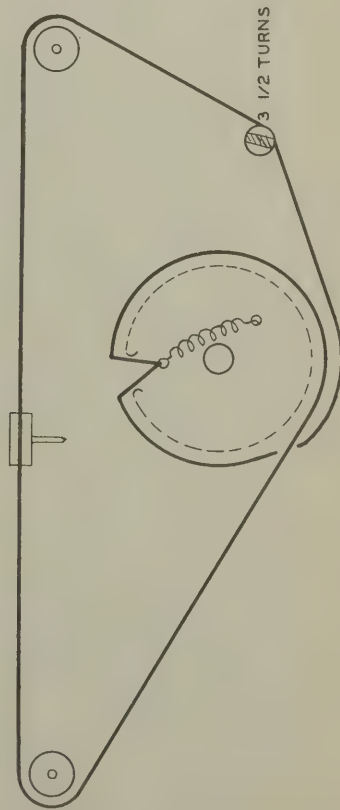
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	OLYMPIC PART No.	WEISSNER PART No.	
42	Loop Ant.	02	1.5Ω	LP176		
43	RF Coil	100Ω	4.5Ω	CL630		
44	Osc. Coil	4Ω	5.Ω	CL177		
45	Input IF	20.5Ω	20.5Ω	TR707	13-8666	
46	Output IF	18.5Ω		TR708	16-8670	

DIAL LIGHT

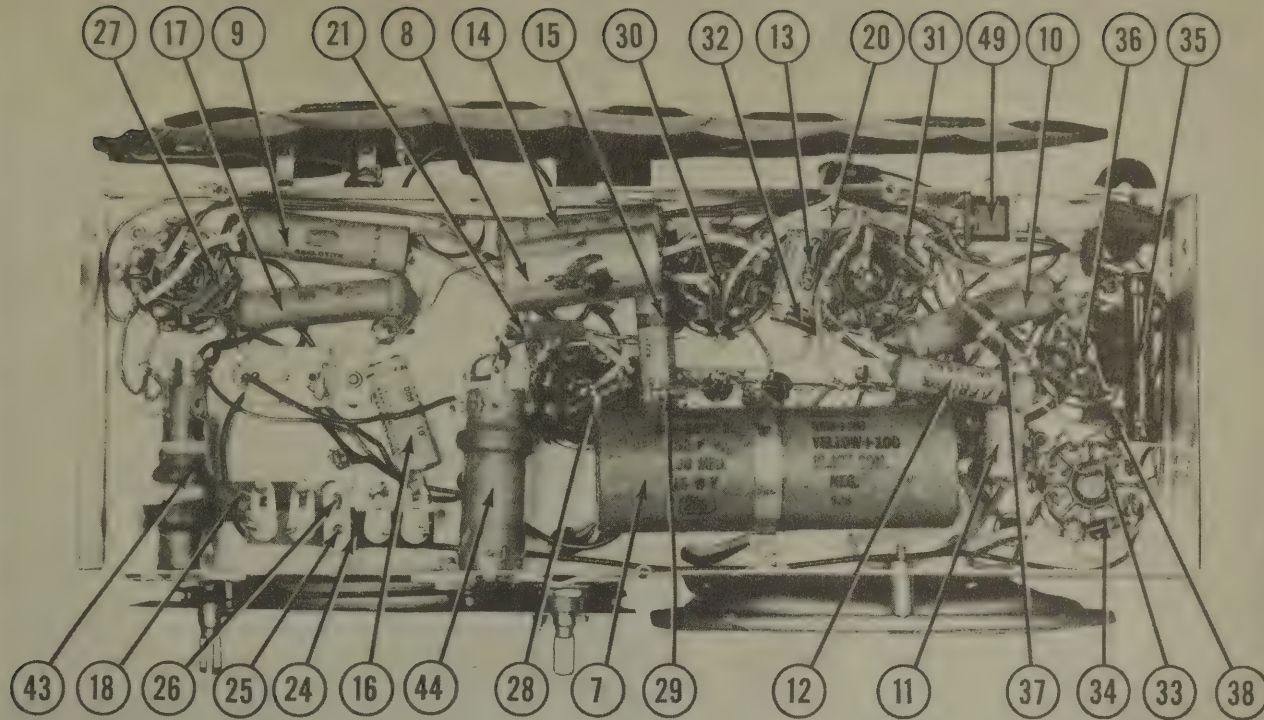
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	OLYMPIC PART No.	
47	Bayonet	6-8	0.15	brown	BU-187	Type 47

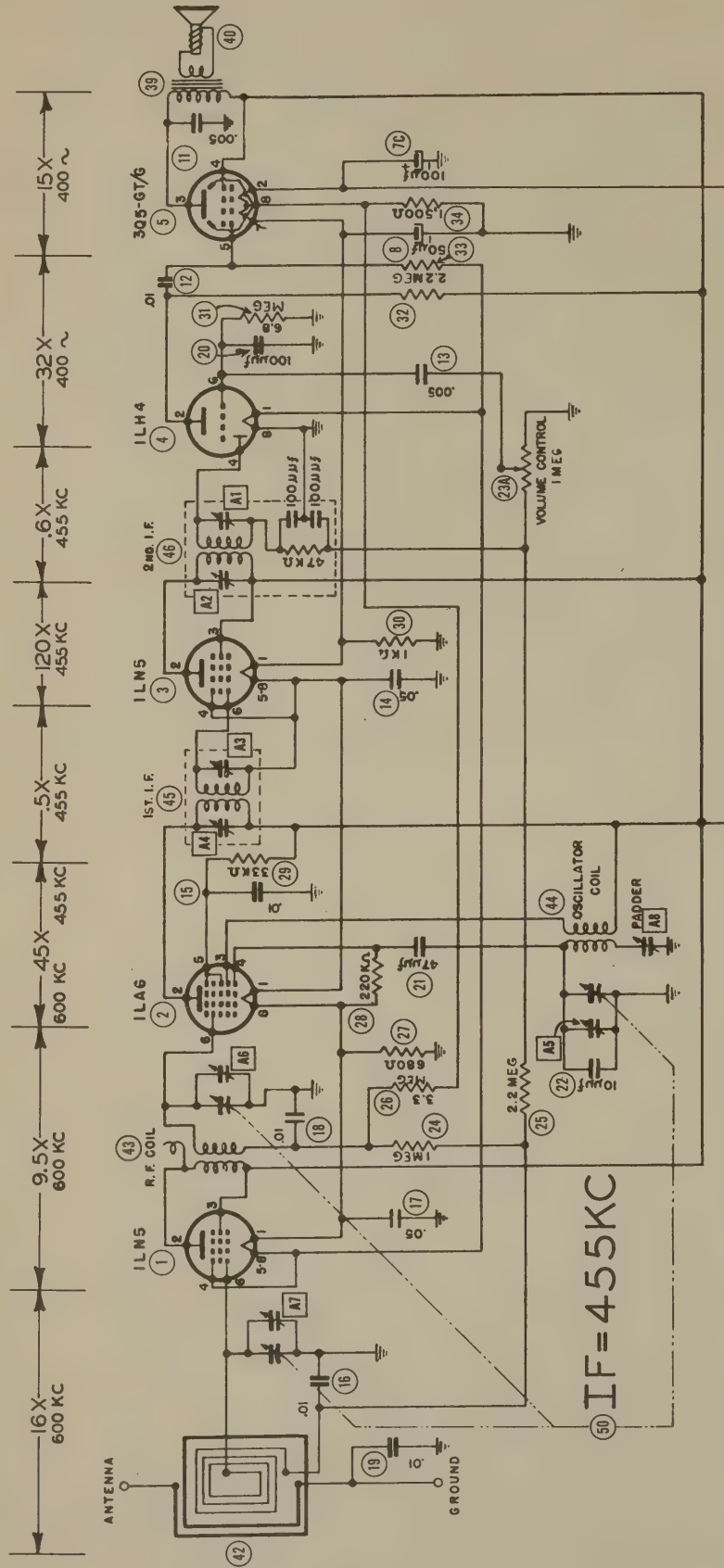
MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
48	Line Cord	LC-315	5402
49	Change-Over Sw.	SW-185	DPT
50	3 Gang Var. Cap.	CV-146	Includes Osc., RF, Ant. Trimmers
51	Trimmer Cap.	CT-368	(220-680 MTF) Osc. Padder
52	Dial Scale	DL-391	
53	Pointer	PO-395	



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LN5	25VDC	92VDC	92VDC	12VDC	12VDC	2VDC	2VDC	1.2VDC
2	1LA6	3.8VDC	92VDC	92VDC	12VDC	12VDC	1.3VDC	0V	2.6VDC
3	1LN5	5VDC	92VDC	92VDC	3.8VDC	3.8VDC	0V	0V	3.8VDC
4	1LH4	12VDC	58VDC	1VDC	1VDC	0V	0V	0V	0V
5	3Q5GT	0V	7.5VDC	87VDC	1VDC	1.2VDC	5VDC	6.3VDC	130VDC
6	3525GT	117VAC	33.5VAC	26.5VAC	INF.	117VAC	128VDC	3.1VAC	130VDC

* NOTE: DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LN5	*	3K Ω	3K Ω	*	*	1.7MEG.	1.7MEG.	*
2	1LA6	*	3K Ω	3K Ω	200K Ω	35K Ω	1.7MEG.	INF.	*
3	1LN5	*	3K Ω	3K Ω	*	*	56 Ω	INF.	*
4	1LH4	*	800K Ω	720K Ω	760K Ω	INF.	6MEG.	INF.	*
5	3Q5GT	INF.	*	3K Ω	3K Ω	2.1MEG.	*	*	*
6	3525GT	540 Ω	34 Ω	28 Ω	INF.	540 Ω	24K Ω	9 Ω	24K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

471-17

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shunted to ground.

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.



OLYMPIC MODEL 6-606-U

TRADE NAME	Olympic, Model 6-606-U
MANUFACTURER	Olympic Radio & Television Corp., 3101-19 38th Ave., Long Island City, N.Y.
TYPE SET	Three Power Portable Superheterodyne Receiver
TUBES (SIX)	Types, 1LN5 RF Amp., 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 1LB4 Power Output, 117Z6GT Rectifier.
POWER SUPPLY	105-125 Volts AC - DC or 9 Volt "A" Batt. (2-4½ Volt "A" Batt.-Eveready #746 or equiv.) and 90 Volt "B" Batt. (2-45 Volt "B" Batt.-Eveready #482 or equiv.)
TUNING RANGE—BROADCAST	530-1700KC RATING .185 Amp. @ 117V AC or 50MA @ 9.1V DC & 14.1MA @ 93V DC

ALIGNMENT INSTRUCTIONS

To set pointer, turn variable fully closed and set pointer at the last reference mark at the left end of the dial. Use battery power for alignment whenever possible. If a-c power is used, use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and chassis. Set volume control at maximum volume and keep input from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screw-driver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to start of front section of variable. Low side to chassis.	455KC	High freq. end	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If a-c power is used without an isolation transformer, reduce dummy to 200 MMF. to reduce hum modulation.
50 MMF.	High side to ant. terminal. Low side to ext. ground terminal.	1500KC	1500KC	"	A5	Adjust for maximum output.
50 MMF.	"	"	Tune for maximum output.	"	A6, A7.	" " " "
50 MMF.	"	600KC	"	"	A8	Rock variable and adjust for maximum output. Recheck A5, A6 and A7 at 1500KC.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		OLYMPIC PART No.	STANDARD REPLACEMENT		
1	RF AMP.	11N5	11N5	7A0	
2	Converter	11A6	11A6	7A0	
3	IF AMP.	11N5	11N5	7A0	
4	Det.-AVC-AF	11B4	11B4	5A0	
5	Power Output	11B4	11B4	5A0	
3	Rectifier	117Z6GT	117Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES.
		OLYMPIC PART No.	SOLAR PART No.	SPRAGUE PART No.	CORNEILL DUBILIER PART No.	
7A	60	COL-2	DSB-8040-150	EL-351	7E5321504	Filter - Blue
B	150					Filter - Red
C	100					Fil. Bypass - Yellow
8	400	RCPL044503AS-4-05		UT-201	3RH151	Line Filter
9	1	RCPL042104AS-4-1		TC-15	D74S5	Pwr. Supp. Bypass
10	.002	RCPL046202AS-6-002		TC-22	D74P1	Output Plate Bypass
11	.01	RCPL046103AS-6-01		TC-11	D76S1	Audio Coupling
12	.005	RCPL046502AS-6-005		TC-25	D76D5	"
13	.01	RCPL046103AS-6-01		TC-11	D76S1	Conv. Screen Bypass
14	400	RCPL044104AS-4-1		TC-1	D74S1	Filament Bypass
15	.02	RCPL042203AS-4-02		TC-12	D74S2	Filament Bypass
16	.25	RCPL042254AS-4-25		TC-2	D74P25	AVC Filter
17	.01	RCPL046103AS-6-01		TC-11	D76S1	Filament Bypass
18	.01	RCPL044104AS-4-1		TC-1	D74S1	Filament Bypass
19	.01	RCPL046103AS-6-01		TC-11	D76S1	Ext. Chd. Isolation
20	47	RCPL042047CM NO. 5-45		1PM-45	MC225	Audio Grid Bypass
21	47	RCPL042047CM NO. 5-45		1PM-45	MC225	IF Bypass Diode
22	47	RCPL042047CM NO. 5-45		1PM-45	MC225	Osc. Grid Capacitor
23	10	RCM20A100M NO. 5-41		1PM-41	MC215	Fixed Trimmer *

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		OLYMPIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
24A	1 Meg.	PT-576	MX402	D13-137	AY-63-Z	Volume Control - See note 1
B	Start	"	"	E	KSS-3	Attach to 24A per instructions
C	Switch	"	M27	42	SM-A2	"
24A	2 Meg.	PT-383	MX403	D13-139	AY-63-Z	Volume Control-See Note 2
B	Start	"	"	E	KSS-3	Attach to 24A per instructions
C	Switch	"	M27	42	SM-A2	"

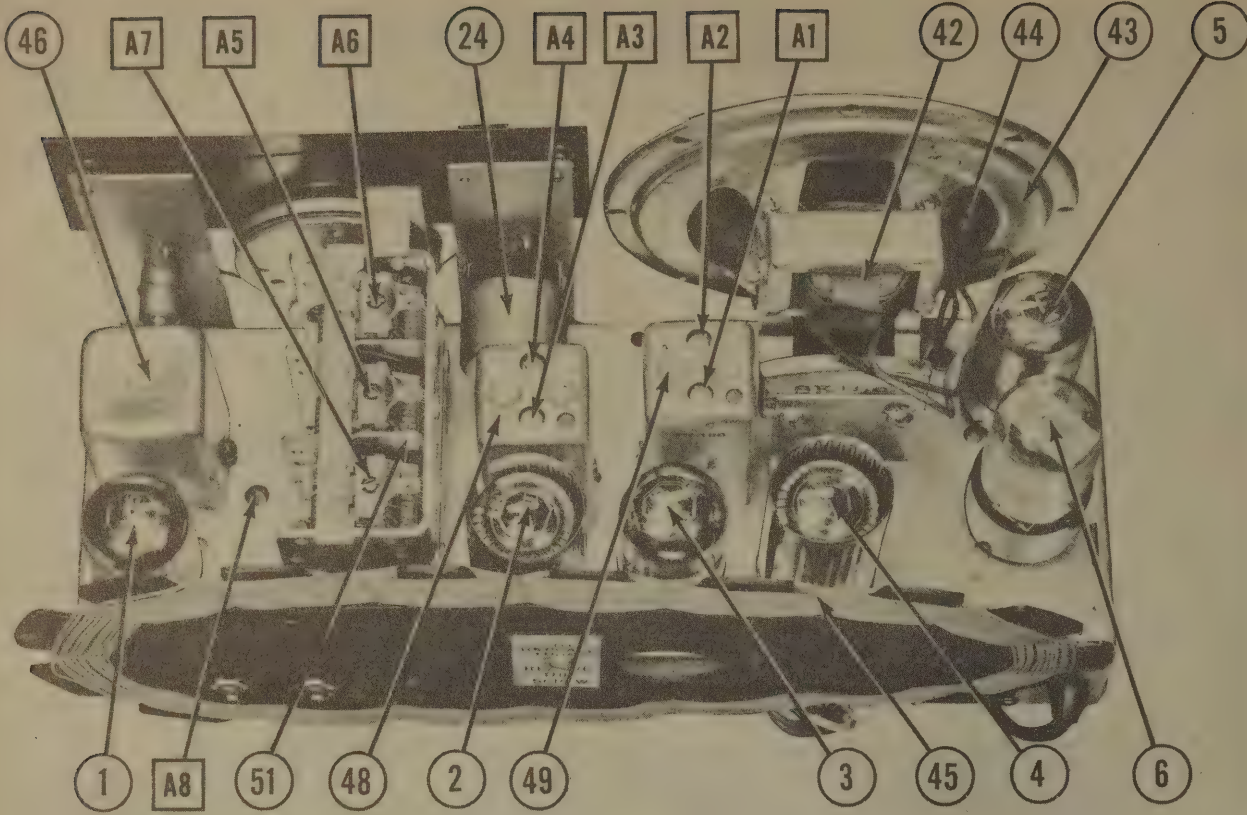
Note 1 - Used in later production.

Note 2 - Used in early production.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		OLYMPIC PART No.	IRC PART No.	
25	1 Meg.	REB105M	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
26	3.3 Meg.	REB335M	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
27	2.2 Meg.	REB225M	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
28	220K	REB224M	BTS-220K	Red-Red-Yl. Oscillator Grid
29	47K	REB47K	BTS-47K	Yl.-Yl.-Or. Oscillator Screen Dropping
30	1500	REB152M	BTS-1500	Br.-Grn.-Red Filament String
31	27K	REB27K	BM-#27	Red-Yl.-Blk.
32	470K	REB470K	BTS-470K	Yl.-Yl.-Yl. Diode Rr Filter
33	470K	REB471M	BTS-470	Yl.-Yl.-Br. Filament String
34	6.8 Meg.	REB685M	BTS-6.8 Meg.	Blue-Gray-Grn. 1st AF Grid
35	470K	REB474M	BTS-470K	Yl.-Yl.-Yl. 1st AF Plate Load

CHASSIS-TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	OLYMPIC PART No.	IRC PART No.	
36	1 Meg.	2	RES105M	BTS-1 166G.	Br.-Blk.-Grn. Output Grid
37	1500Ω	2	RES152M	BTS-1500	Br.-Grn.-Red Filament String
38	2500Ω	10	RE-407	ABA-3000	" " -See note 3
39	3300Ω	1	REC532K	BTA-3300	Or.-Or.-Red Filter
40	27Ω	2	REL270K	BN-2-27	Red-Vi.-Blk. Surge Limiter
41	220KΩ	2	REL224M	BTS-220K	Red-Red-Vi. Line Isolation

Note 3 - Set slider at 2500Ω from one end when using IRC replacement.

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	OLYMPIC PART No.	STANGOR THORDARN PART No.	
42	7000Ω	3.5Ω	4502 .5Ω	Part of A-3876 SK-476	122547

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD PM	VC IMP.	OLYMPIC PART No.	JENSEN PART No.	
43	4-5/8"	3.5Ω	SK-476	ST-106*	*Fabricate new mounting bracket.
44	4-5/8"	1/2"		Mod. PS-W	

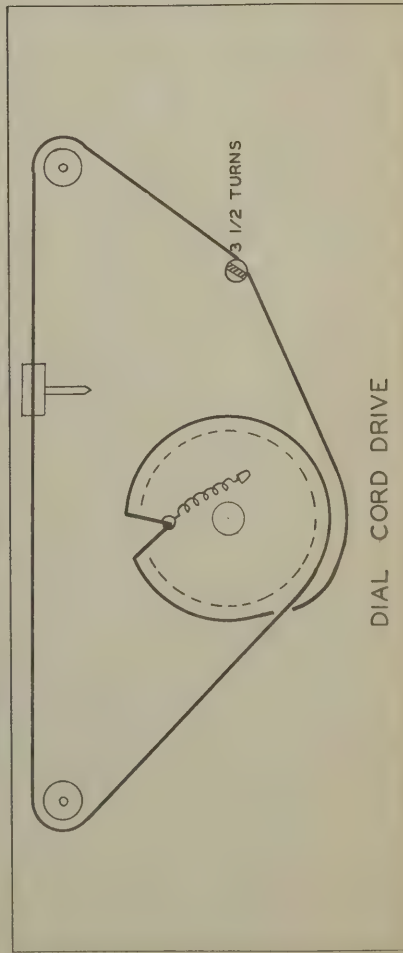
NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT.

R F COILS

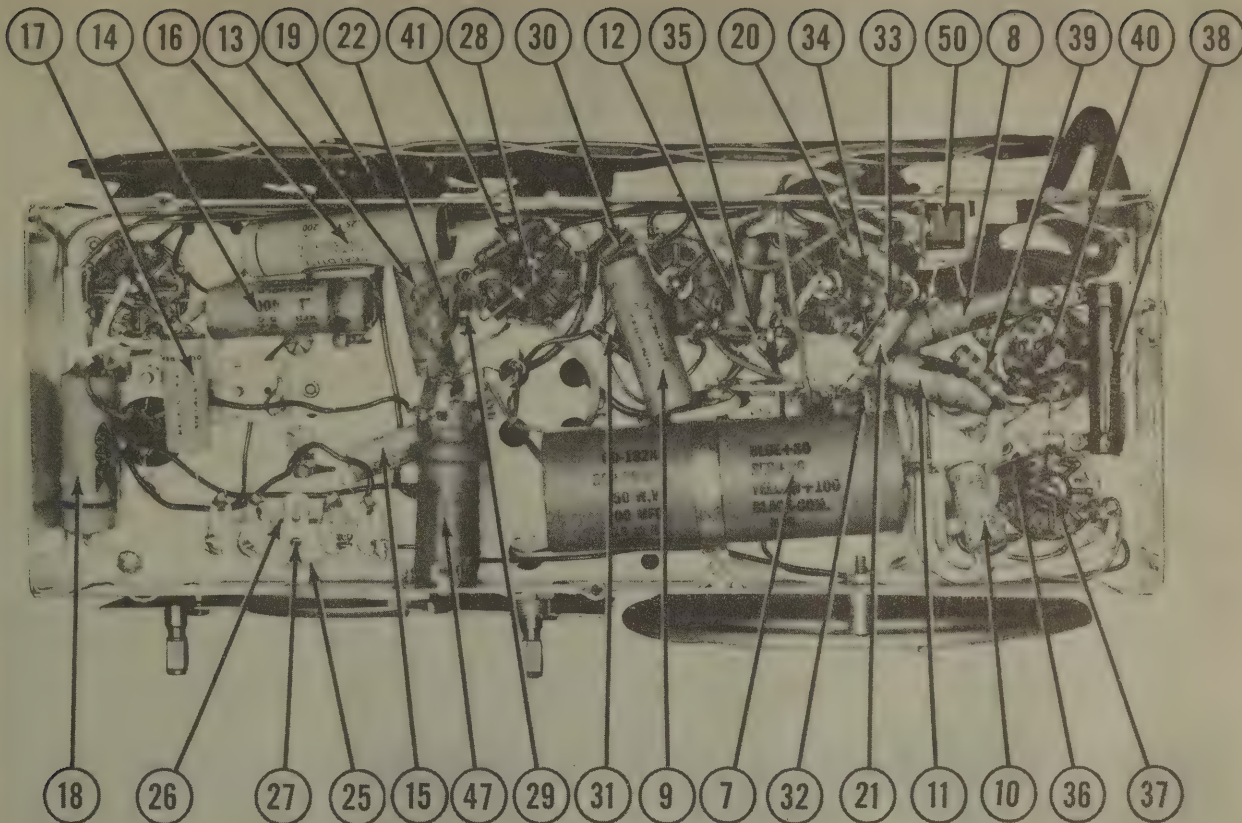
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	OLYMPIC PART No.	MEISSNER PART No.	
45	Loop Ant.	0Ω	1.5Ω	LP178		
46	Rf Coil	105Ω	3.3Ω	CL178		
47	Osc. Coil	4Ω	5.8Ω	CL177	14-1040	
48	Input IF	11.5Ω	11.5Ω	TR186	16-6866	
49	Output IF	11.5Ω	14Ω	TR186	16-6867	

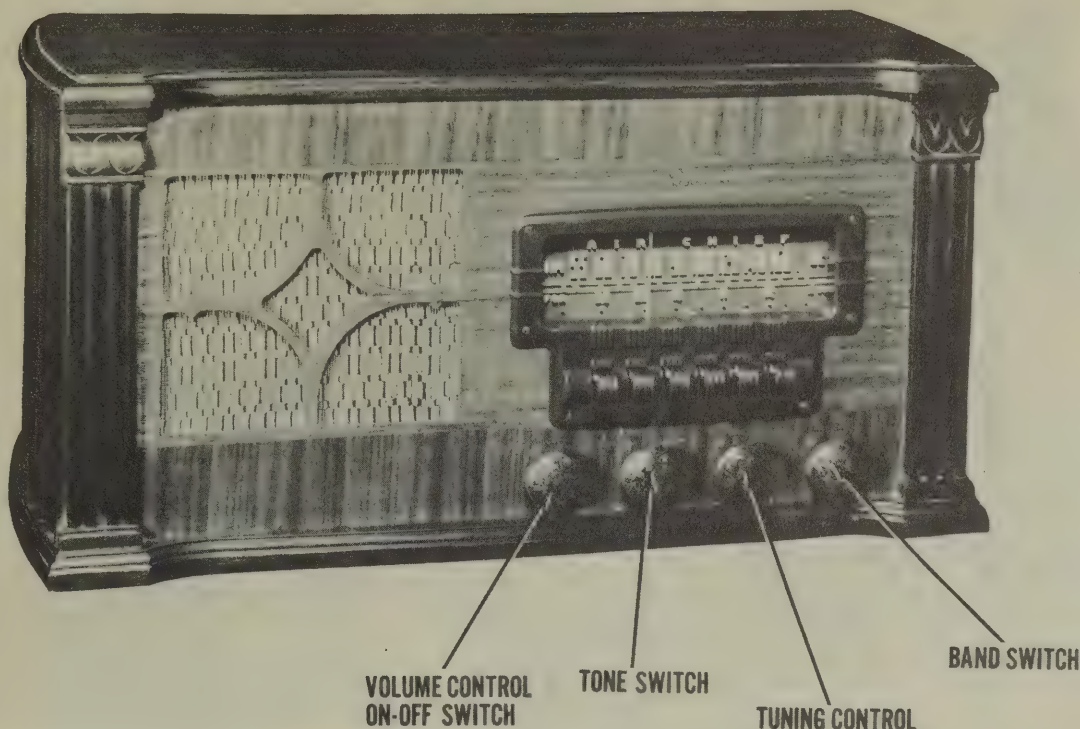
MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
50	AC-DC Batt. Sw.	SW-193	TPDT (Slide Type)
51	3 Gang Var. Cap.	CV-146	Osc., RF, & Ant. Trimmers Incl.
AB	Trimmer	CT-388	Osc. Padder (220-680 KRF)
	Dial Glass	CR-299	
	Dial Scale	DL-391	
	Pointer	PO-395	



CHASSIS—BOTTOM VIEW





AIR CHIEF MODEL 4-A-21

TRADE NAME Air Chief, Models 4-A-21, (Code No. 5-5-9001A), 4-A-22 (Code No. 5-5-9001B).
SUPPLIER The Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, Ohio
TYPE SET AC Operated 2 Band Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (SIX) Types, 6SK7 RF Amp., 6SA7 1st Det.-Osc., 6SF7 IF-2nd Det.-AVC, 6SK7 1st AF, 6K6GT Power Output, 5Y3GT Rectifier

POWER SUPPLY 117 Volts AC**RATING**

.485 Amps. @ 117V AC

TUNING RANGE—BROADCAST 540-1780KC**SHORT WAVE**

8.9 - 12.8MC

ALIGNMENT INSTRUCTIONS

To set pointer, turn variable fully closed and set pointer at the last reference mark at the left end of the dial. To insure proper tracking keep receiver and loop in the same relative position as they are when mounted in cabinet. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to chassis.	455KC	BC (Clock-wise)	Any point of non-interfering signal.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
500 MMF.	Ext. Ant. Clip on loop.	1500KC	"	1500KC	"	A5	" " " "
500 MMF.	"	"	"	Tune for maximum output.	"	A6	" " " "
500 MMF.	"	"	"	"	"	A7	" " " "
500 MMF.	"	600KC	"	"	"	A8	Rock variable and adjust for maximum output. Repeat adjustments of A5, A6, and A7.
400Ω carbon resistor	"	12.0MC	SW (Counter-clock-wise)	12.0MC	"	A9	Adjust for maximum output. Check to see if proper peak was obtained by tuning in image at approx. 11.1 MC. If image does not appear, realign at 12.0MC by opening A9 to next peak. Recheck image.
"	"	"	"	Tune for maximum output.	"	A10	Rock variable and adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		AIR CHIEF PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Rf Amp.	6SK7	6SK7	8N	
2	1st Det.-Osc.	6SA7	6SA7	8R	
3	1st AF	6SK7	6SK7	7AZ	
4	1st AF	6SK7	6SK7	8N	
5	Power Output	6X6GT	6X6GT	7S	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		AIR CHIEF PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7	20 CAP.	502207	FP339	DY-313	EL-312	UF6CJ13
8	10 400					
9	20 25					
10	.05 600	502154	TP415	S-6-05	TC-15	PR525-25
11	.02 300	502150	TP424	S-6-004	TC-24	D76S5
12	.04 400	502152	TP423	S-4-02	TC-12	D76D4
13	1 400	502410	TP425	S-4-1	TC-1	D74S2
14	.25 400	502405	TP426	S-4-25	TC-2	D74P25
15	.04 600	502150	TP423	S-4-004	TC-24	D76D4
16	.01 400	502151	TP421	S-4-01	TC-1	D74S5
17	.05 400	502157	TP428	S-4-05	TC-15	D74S5
18	.05 200	502157	TP428	S-4-05	TC-15	D74S5
19	.05 200	502157	TP428	S-4-05	TC-15	D74S5
20	110 500	502160	MC235	MO-5-31	1FM-31	D74S5
21	260 500	502271	MC240	MO-5-325	1FM-325	D74S5
22	130 500	502201	MC255	MO-5-325	1FM-325	D74S5
23	39 500	502182	MC225	MO-5-45	1FM-45	D74S5
24	50 500	502189	MC240	MO-5-325	1FM-325	D74S5
25	2 500	502411	MC255	MO-5-325	1FM-325	D74S5
26	10 500	502295	MC240	MO-5-325	1FM-325	D74S5
27	270 500	502161	MC255	MO-5-325	1FM-325	D74S5
28	1000 500	502165	MC255	MO-5-325	1FM-325	D74S5
29	150 500	502202	MC255	MO-5-325	1FM-325	D74S5

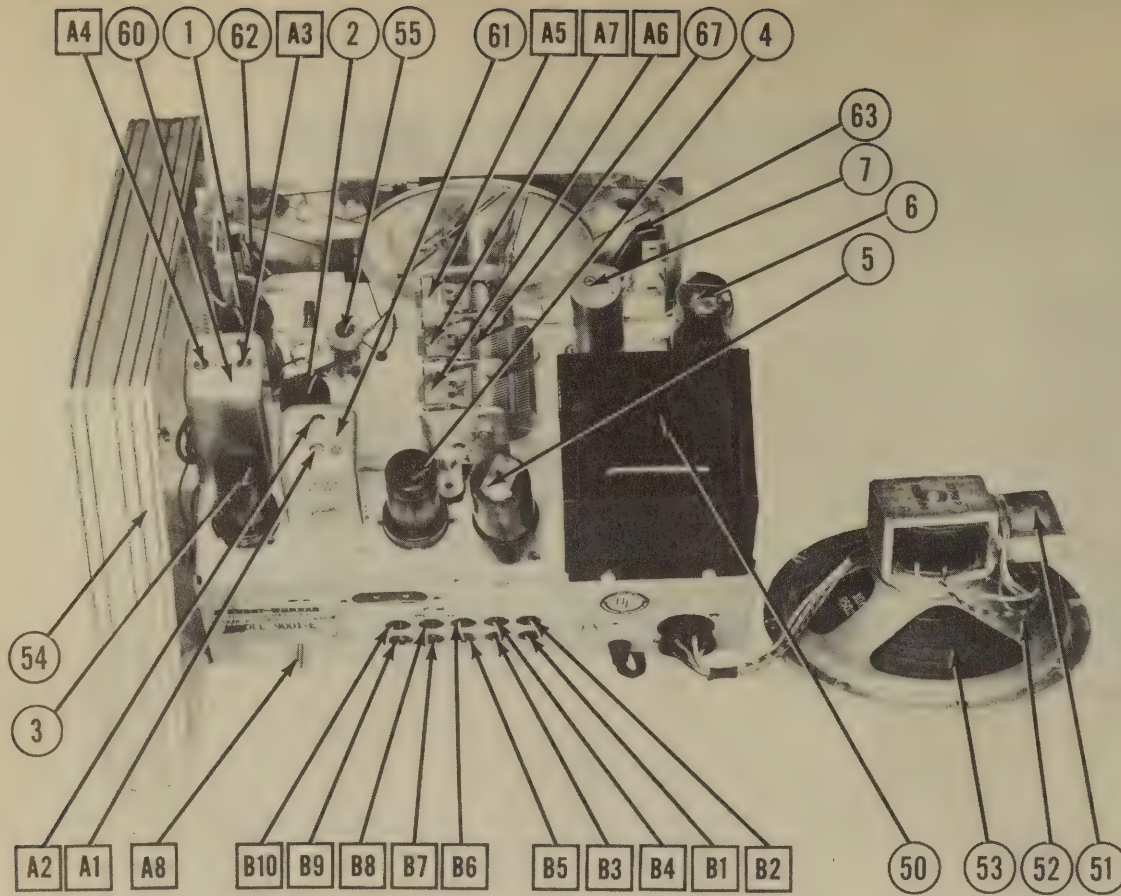
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIR CHIEF PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
30	500KΩ	502143	MC401	D13-133	AM-50-Z	Volume Control
31	500KΩ	502143	MC401	D13-133	AM-50-Z	Volume Control
32	500KΩ	502143	MC401	D13-133	AM-50-Z	Volume Control
33	500KΩ	502143	MC401	D13-133	AM-50-Z	Volume Control
34	500KΩ	502143	MC401	D13-133	AM-50-Z	Volume Control
35	500KΩ	502143	MC401	D13-133	AM-50-Z	Volume Control

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		AIR CHIEF PART No.	IRC PART No.	RESISTANCE	
31	4-7 Meg.	502469	BTS-4-7 Meg.	4-7 Meg.	V1-V1-Grn. Rf Grid
32	220Ω	502127	BW-1-220	220Ω	Red-Red-Br. Rf Cathode
33	100KΩ	502132	BTS-100K	100KΩ	Br.-Blk.-Yl. Rf Screen Dropping
34	470KΩ	502134	BTS-470K	470KΩ	V1-V1-Yl. AVC Network
35	22KΩ	502130	BTS-22K	22KΩ	Red-Red-Or. Osc. Grid

CHASSIS—TOP VIEW

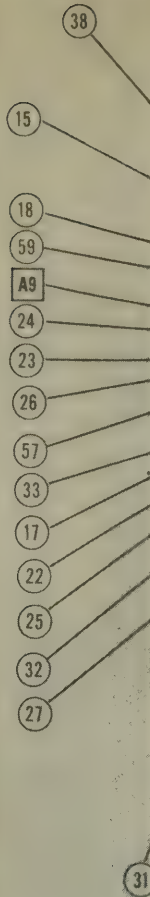


PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	AIR CHIEF PART No.	IRC PART No.		
35	330Ω	1	502458	BTS-33K	Or.-Or.-Or. Conv. Screen Dropping	
37	2.2 Meg.	1	502135	BTS-2.2 Meg.	Red-Red-Grn. AVC Network	
38	47Ω	1	502264	BN-2-47	Yl.-Yl.-Br. 1st IF Cathode	
39	68KΩ	1	502467	BTS-68K	Blue-gray-Or. 1st IF Screen Dropping	
40	47KΩ	1	502131	BTS-47K	Yl.-Yl.-Or. IF Filter	
41	4.7 Meg.	1	502468	BTS-4.7 Meg.	Yl.-Yl.-Grn. 1st AF Grid	
42	2200Ω	1	502128	BTS-2200	Red-Red-Red 1st AF Cathode	

CHASSIS—BOTTOM VIEW



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	OV.	6.2VAC	OV.	OV.	1.4VDC	56VDC	OV.	236VDC
2	6SA7	OV.	6.2VAC	238VDC	70VDC	-3VDC	OV.	OV.	-2VDC
3	6SF7	OV.	-2VDC	5VDC	72VDC	OV.	238VDC	OV.	6.2VDC
4	6SK7	OV.	6.2VDC	OV.	OV.	1.35VDC	20VDC	OV.	83VDC
5	6K6GT	OV.	6.2VDC	223VDC	238VDC	-2.1VDC	-19VDC	OV.	OV.
6	5Y3GT	OV.	305VDC	OV.	310VAC	OV.	310VAC	OV.	305VDC

NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN STANDARD BROADCAST POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	1Ω	0Ω	1.9MEG.	185Ω	295KΩ	0Ω	195KΩ
2	6SA7	0Ω	1Ω	95KΩ	228KΩ	18KΩ	5Ω	0Ω	1.8MEG.
3	6SF7	0Ω	1.8MEG.	44Ω	260KΩ	360KΩ	195KΩ	0Ω	1Ω
4	6SK7	0Ω	1Ω	0Ω	4MEG.	2.2KΩ	2.4MEG.	0Ω	515KΩ
5	6K6GT	INF.	1Ω	195KΩ	195KΩ	480KΩ	300Ω	0Ω	0Ω
6	5Y3GT	INF.	195KΩ	INF.	450Ω	INF.	480Ω	INF.	195KΩ

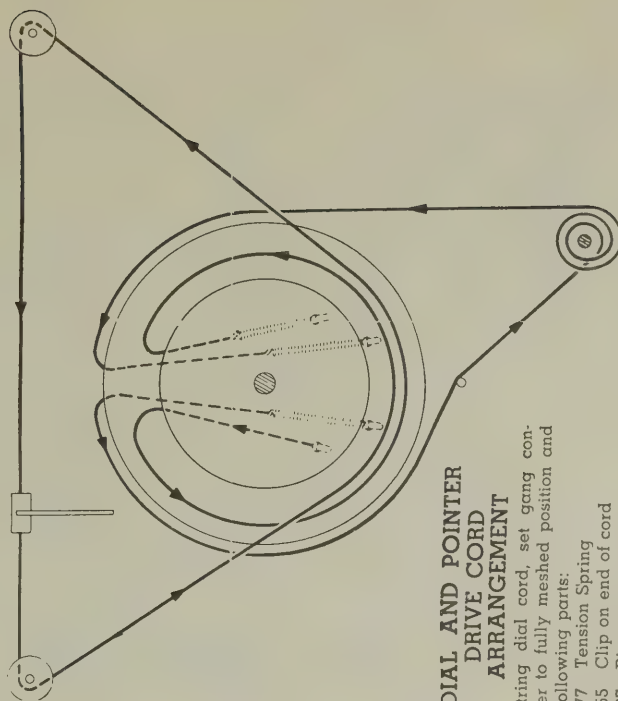
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- Socket connection are shown as bottom view.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage measure
- Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

DIAL AND POINTER DRIVE CORD ARRANGEMENT

To string dial cord, set gang condenser to fully meshed position and use following parts:

- 113177 Tension Spring
- 114955 Clip on end of cord
- 119087 Ring
- 117057 Cord (61 inches)
- 34 inches for pointer drive
- 27 inches for tuning drive



PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIR CHIEF PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7	6SK7	8N	
2	1st Det.-Osc.	6SA7	6SA7	6R	
3	IF-2nd Det.-AVC	6SF7	6SF7	7AZ	
4	1st AF	6SK7	6SK7	8N	
5	Power Output	6K6GT	6K6GT	7S	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
	RESIST. ANCE	WATTS	AIR CHIEF PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
1	20	400	502207	FP339	DY-313	EL-312	Filter
2	10	400			S-6-05	TC-15	Tone Compensation
3	20	25			S-6-004	TC-24	636 Plate Bypass
4	.05	600	502154	TP415	S-4-02	TC-12	Audio Coupling
5	.004	300	502150	TP423	S-4-1	TC-2	Audio Plate Decoupling
6	.02	400	502110	TP428	S-4-25	TC-2	Feedback
7	.1	400	502405	TP430	S-4-05	TC-24	Audio Coupling
8	.25	400	502150	TP404	S-4-05	TC-15	IF Screen Bypass
9	.05	400	502157	TP423	S-4-01	TC-11	Osc. Feedback
10	.1	400	502155	TP421	S-4-1	TC-1	AVC Filter
11	.05	400	502157	TP428	S-4-05	TC-15	RF Screen Bypass
12	.05	400	502157	TP426	S-4-05	TC-15	RF Bypass Pwr. Supp.
13	.05	200	502160	MC235	M0-5-31	LFM-31	AVC Filter
14	.110	500	502271	MC240	M0-5-325	LFM-325	Audio Plate Bypass
15	260	500	502201		M0-5-45	LFM-45	IF Bypass Diode
16	130	500	502152		M0-5-325	LFM-325	Fixed Padder Cer.
17	39	500	502159		M0-5-45	LFM-45	Fixed Padder Cer.
18	50	500	502159		M0-5-325	LFM-325	Osc. Grid Capacitor
19	2	500	502411		M0-5-325	LFM-325	Neutralizing Cer.
20	2	500	502295		M0-5-325	LFM-325	RF Pri. Shunt Cer.
21	270	500	502161		M0-5-325	LFM-325	Fixed Tuning Osc. PB
22	1000	500	502165		M0-5-325	LFM-325	Screen Bypass PB
23	150	500	502202		M0-5-325	LFM-325	Fixed Padder Cer.

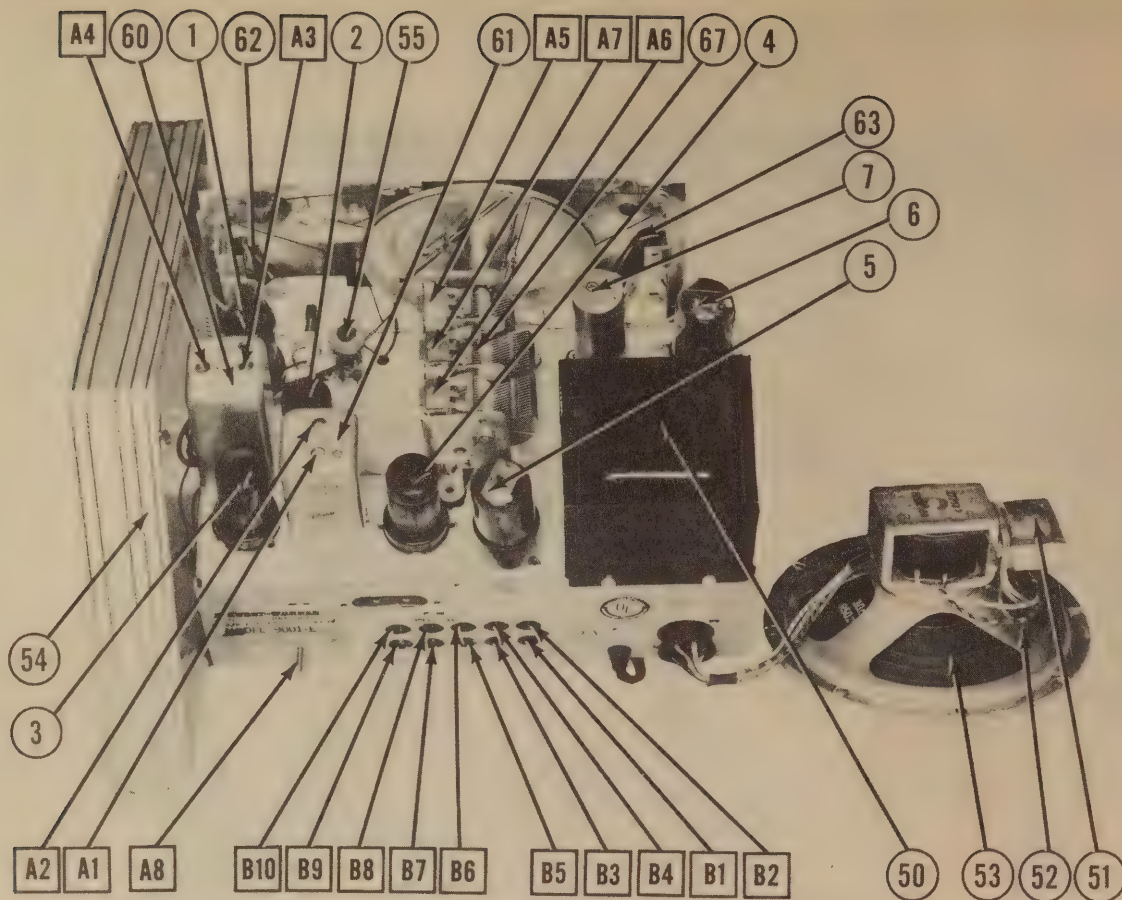
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST. ANCE	WATTS	AIR CHIEF PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
1	500KΩ	1	502143	MK401	D13-133	AM-60-Z	Volume Control
2	Not Req.		Not Req.	M26	41	KSS-3	Attach to 304 per instructions
3	Switch					SW-4	

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIR CHIEF PART No.	IRC PART No.	
1	4.7 Meg.		502468	BTS-4.7 Meg.	V1-V1, -Grn. RF Grid
2	220Ω		502127	BW-2-220	Red-Red-Br. RF Cathode
3	100KΩ		502132	BTS-100K	Br.-Blk.-Yl. RF Screen Dropping
4	470KΩ		502134	BTS-470K	V1-V1, -Yl. AVC Network
5	22KΩ		502130	BTS-22K	Red-Red-Or. Osc. Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIR CHIEF PART No.	IRC PART No.	
36	50K	1	502466	5T-33K	Or.-Or.-Or. Conv. Screen Dropping
37	5.2 Meg.	1	502135	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
38	47K	1	502264	BW-2-47	Yl.-Vl.-Br. 1st IF Cathode
39	68K	1	502467	BTS-68K	Blue-Gray-Or. 1st IF Screen Dropping
40	47K	1	502131	BTS-47K	Yl.-Vl.-Or. IF Filter
41	4.7 Meg.	1	502468	BTS-4.7 Meg.	Yl.-Vl.-Grn. 1st AF Grid
42	220K	1	502128	BTS-220K	Red-Red-Red 1st AF Cathode
43	220K	1	502133	BTS-220K	Red-Red-Yl. 1st AF Plate Load
44	100K	1	502132	BTS-100K	Br.-blk.-Yl. 1st AF Plate Filter
45	1.2 Meg.	1	502135	BTS-2.2 Meg.	Red-Red-Grn. 1st AF Screen Dropping
46	47K	1	502134	BTS-47K	Yl.-Vl.-Yl. Output Grid
47	470K	1	502291	BTS-470K	Yl.-Vl.-Red Tone Compensation
48	56K	1	502127	BW-2-56K	Grn.-Blue-Br. Tone Compensation
49	33K	2	502137	BW-2-33K	Or.-Or.-Br. Output Bias

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	AIR CHIEF PART No.	STANCOR PART No.	THORDARSON PART No.	INSTALLATION NOTES
50	117V. @ .465A	300V CT @ .058A	5V @ 1.82A	6.2V @ 2.02A	502174	P-6120*	T-13820*	*Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING		DC RES.		REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI.	SEC.	AIR CHIEF PART No.	STANCOR PART No.	THORDARSON PART No.	
51A	7370Ω	3.2Ω	630Ω	.66Ω	504122	A-33731	T-222471	
B					504031			Solder to bracket same as the original.
C					502170			Used with speaker M-502168

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	AIR CHIEF PART No.	JENSEN PART No.	
52A	1000Ω	3.2Ω	D-502168	ST-431	
B	Speaker		M-502168	Mod. H-6S	Used with Output Transformer 504122
C	Speaker		R-502168		" " " " 504031
53A	6-3/16"	1/2"	504123		" " " " 502170
B	Cone		504032		
C	Cone		502169		Used with Speaker M-502168

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIR CHIEF PART No.	MEISSNER PART No.	
54	Loop	0Ω	0Ω	502247		
55	LC Ant. Coil	.5Ω	3Ω	502112		
56	SW Ant. Coil	.5Ω	0Ω	502110		
57	LC RF Coil	110Ω	0Ω	502113		
58	LC Osc. Coil		5Ω	502114		
59	SW Osc. Coil		.2Ω	502111		
60	Input IF	20Ω	20Ω	502102	16-6658	
61	Output IF	19Ω	19Ω	502103	16-6660	

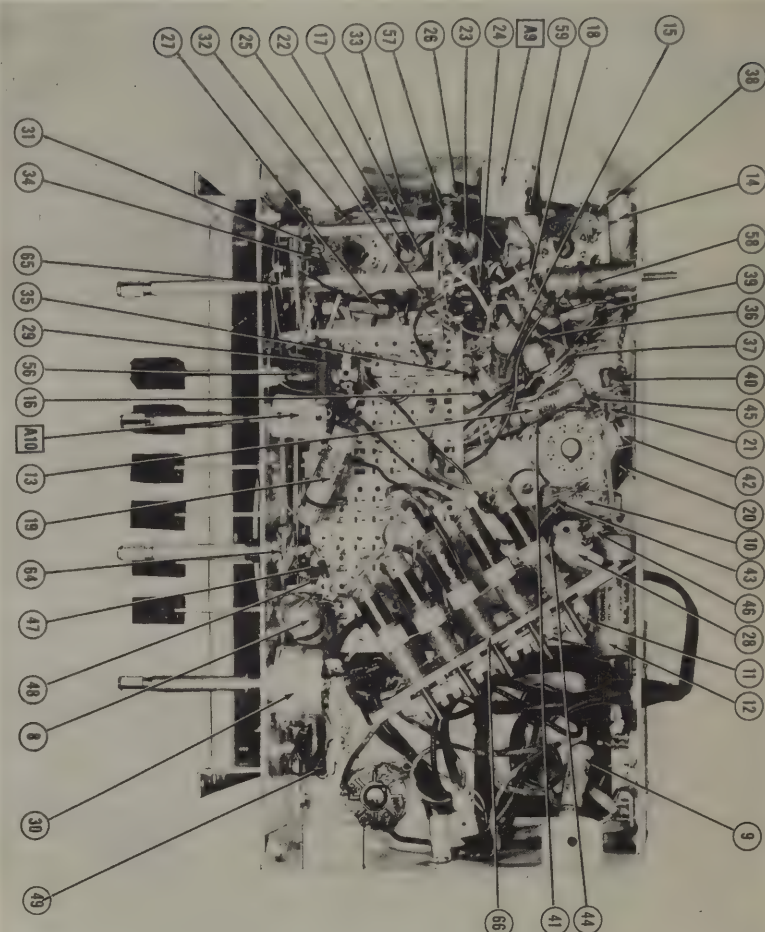
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIR CHIEF PART No.		
62	Bayonet	6-8	0.25	blue	110629		Type 44
63	Bayonet	6-8	0.25	blue	110629		Type 44

MISCELLANEOUS

ITEM No.	PART NAME	AIR CHIEF PART No.	NOTES
64	Tone Switch	502146	
65	Band Switch	502147	
66	PB Assembly	502025	Complete Coil & Trimmer Assby. For Automatic Tuning.
67	Tuning Cap.	502122	3 Gang Variable Cap.
	PB Switch	502177	
A9	Trimmer Cap.	502171	SW Osc. Adj. 5-35 MMFD.
A10	"	502172	SW Ant. Adj. 25-100 MMFD.
	Coil	502907	PB Tuning (540-1000KC)
	"	502908	" " (650-1300KC)
	"	502909	" " (975-1600KC)

CHASSIS—BOTTOM VIEW



PUSH BUTTON ADJUSTMENTS

The five push buttons from left to right (facing front of receiver) cover the following frequencies in order:

540 to 1000KC, 650 to 1300KC, 650 to 1300KC, 975 to 1600KC, 975 to 1600KC.

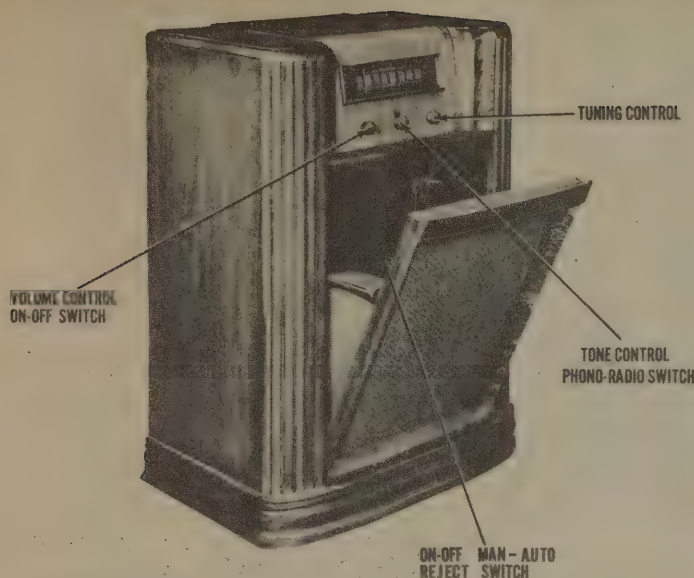
To set the individual push buttons on the desired stations proceed as follows:

1. Select a station within the frequency range of B1 and B2 (540 to 1000KC) and tune in the station using manual tuning.
2. Press in push button corresponding to B1 and B2 which is the one on the left (facing front of receiver).
3. Adjust B1 to tune in the desired station, Turning the adjustment counter-clockwise increases the frequency.
4. Adjust B2 for maximum volume of the selected station.

5. Proceed in the same order in setting the remaining push buttons. Always select a station within the frequency range of the corresponding push button adjustments. B3, B5, B7 and B9 are adjusted to tune in station. B4, B6, B8 and B10 are adjusted for maximum volume of selected station.

DISASSEMBLY INSTRUCTIONS

1. Remove the four push-on type control knobs and felt washers.
2. Remove eight Phillips head screws from cabinet back cover. Remove cover.
3. Disconnect blue and green leads from loop antenna.
4. Remove Phillips head screw holding brown antenna lead to loop antenna. Remove lead.
5. Remove push-on type brown lead clip from loop antenna.
6. Remove three Phillips head wood screws holding loop antenna to cabinet. Remove loop ant.
7. Remove four hex nuts and washers holding speaker to cabinet.
8. Disconnect speaker plug from chassis by removing set screw.
9. Remove speaker from cabinet.
10. Remove four hex head machine screws and washers holding chassis to cabinet. Remove chassis.



AIR CHIEF MODEL 4-A-31

TRADE NAME	Air Chief, Model 4-A-31 (Code No. 177-5-4A31)		
SUPPLIER	The Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, Ohio		
TYPE SET	AC Operated Automatic Phonograph - Radio Combination - Self Contained Loop Antenna		
TUBES (SIX)	Types, 6SK7GT RF Amp., 6SA7GT Converter, 6SK7GT, IF Amp., 6SQ7GT Det.-AVC-AF, 6V6GT Power Output, 6X5GT Rectifier.		

POWER SUPPLY 117 Volts AC
TUNING RANGE—BROADCAST 540-1620KC

RATING .430 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS

To set pointer, turn variable fully closed and set pointer at the last reference mark at the left end of the dial. Set volume control at maximum volume, tone control at maximum treble and keep output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stat- tor of rear sec- tion of variable Low side to chassis.	455KC	High freq. end.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output.
250 MMF.	High side to ext. ant. lead.	1500KC	1500KC	"	A5	" " " "
250 MMF.	"	"	Tune for maxi- mum output.	"	A6	" " " "
250 MMF.	"	600KC	"	"		Check calibration.

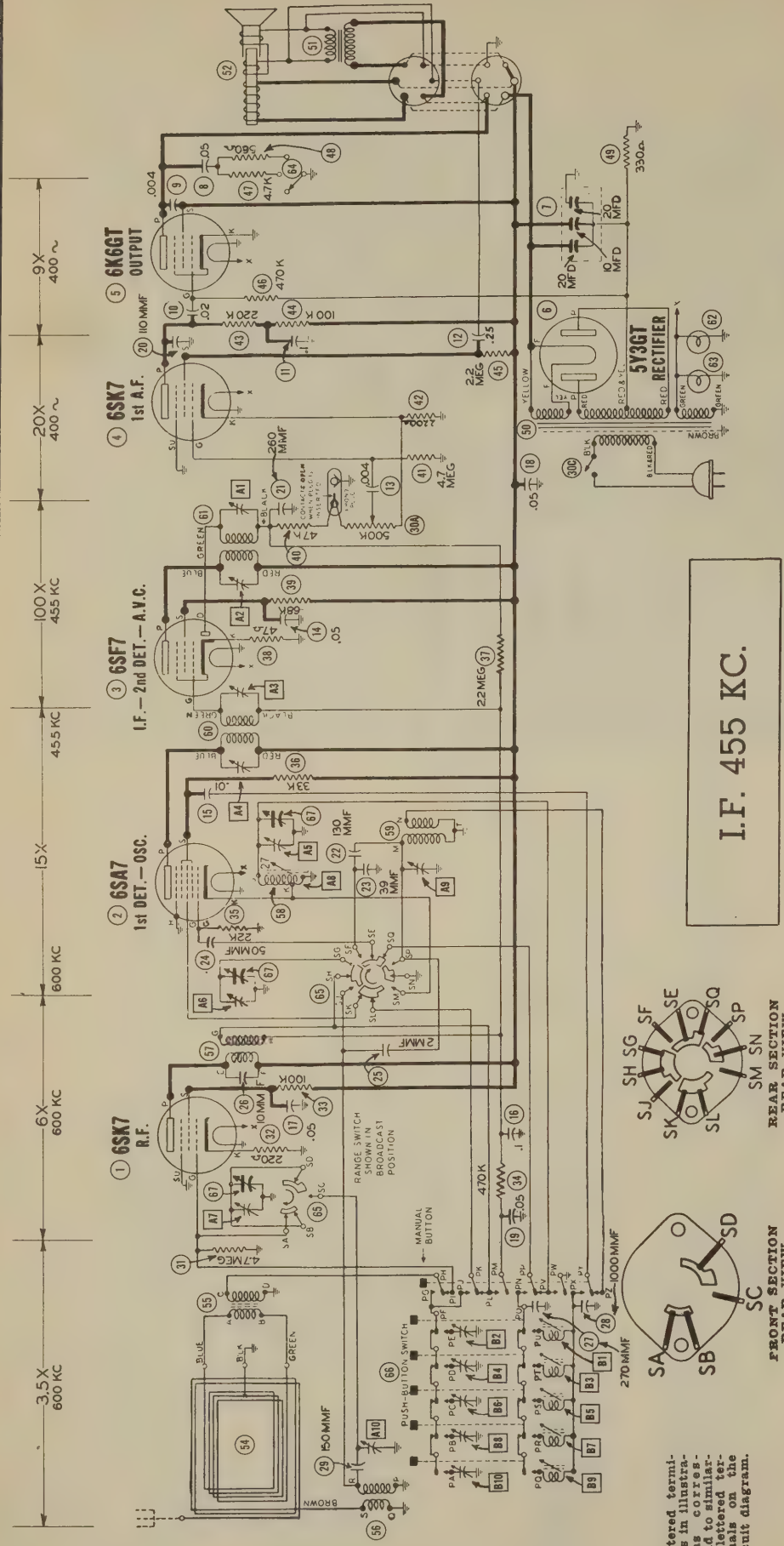
DISASSEMBLY INSTRUCTIONS

1. Remove the push-on type control knobs.
2. Disconnect the phono-motor receptacle.
3. Disconnect the phono-pickup and loop antenna plug from chassis.
4. Remove the hex head set screw from speaker plug. Remove speaker plug from chassis.
5. Loosen Phillips head screw securing line cord bracket and remove line cord. Slide line cord up through loop hole on right hand side of chassis board.
NOTE: The phono-motor, pickup and speaker leads all extend through loop hole on right hand side of chassis board. The loop antenna leads on the left side of cabinet facing rear of cabinet.
6. Remove the three hex head machine screws and washers holding chassis to chassis board. Remove chassis.
7. Unclip the loop antenna from mounting rod and remove loop antenna from cabinet.
8. Remove the four hex nuts and lock washers holding speaker to cabinet. Remove speaker.

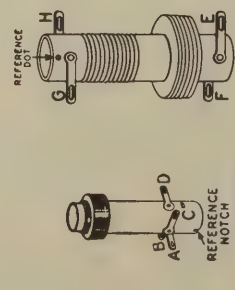
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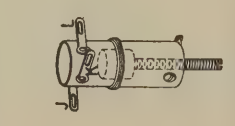
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THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE



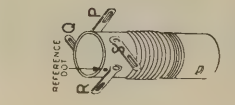
BC. ANTENNA COUPLING COIL 502112



BC. OSCILLATOR COIL 502114



S.W. OSCILLATOR COIL 502111

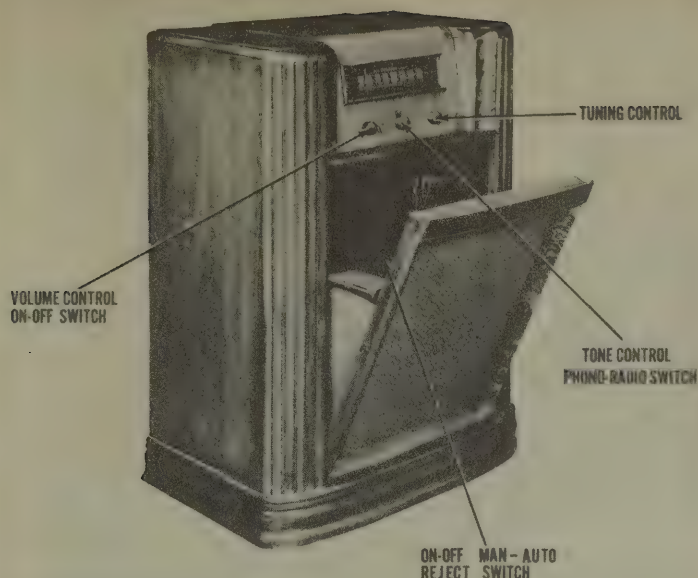


S.W. ANTENNA COIL 502110

PUSH-BUTTON SWITCH 502177											
PA	PB	PC	PD	PE	PF	PG	PH	PJ	PK	PL	PM
PA	PB	PC	PD	PE	PF	PG	PH	PJ	PK	PL	PM

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. The following precautions should be observed in making stage gain measurements for this set.

- 1 - Use the 600KC signal with 400-cycle modulation connected as shown. (Use near-by frequency if local station interferes.)
- 2 - For RF and IF measurements connect negative terminal of 3-volt battery to AVC lead and positive terminal to B-. IMPORT-ANT - Disconnect battery when measuring audio stage gains.
- 3 - Be sure receiver is carefully tuned to generator signal. (Use weak signal for sharp tuning.)



AIR CHIEF MODEL 4-A-31

TRADE NAME Air Chief, Model 4-A-31 (Code No. 177-5-4A31)
SUPPLIER The Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, Ohio
TYPE SET AC Operated Automatic Phonograph - Radio Combination - Self Contained Loop Antenna
TUBES (SIX) Types, 6SK7GT RF Amp., 6SA7GT Converter, 6SK7GT, 1F Amp., 6SQ7GT Det.-AVC-AF, 6V6GT Power Output, 6X5GT Rectifier.

POWER SUPPLY 117 Volts AC
TUNING RANGE-BROADCAST 540-1620KC

RATING .430 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS

To set pointer, turn variable fully closed and set pointer at the last reference mark at the left end of the dial. Set volume control at maximum volume, tone control at maximum treble and keep output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to station of rear section of variable Low side to chassis.	455KC	High freq. end.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output.
250 MMF.	High side to ext. ant. lead.	1500KC	1500KC	"	A5	" " " "
250 MMF.	"	"	Tune for maximum output.	"	A6	" " " "
250 MMF.	"	600KC	"	"		Check calibration.

DISASSEMBLY INSTRUCTIONS

1. Remove the push-on type control knobs.
2. Disconnect the phono-motor receptacle.
3. Disconnect the phono-pickup and loop antenna plug from chassis.
4. Remove the hex head set screw from speaker plug. Remove speaker plug from chassis.
5. Loosen Phillips head screw securing line cord bracket and remove line cord. Slide line cord up through loop hole on right hand side of chassis board.
 NOTE: The phono-motor, pickup and speaker leads all extend through loop hole on right hand side of chassis board. The loop antenna leads on the left side of cabinet facing rear of cabinet.
6. Remove the three hex head machine screws and washers holding chassis to chassis board. Remove chassis.
7. Unclip the loop antenna from mounting rod and remove loop antenna from cabinet.
8. Remove the four hex nuts and lock washers holding speaker to cabinet. Remove speaker.

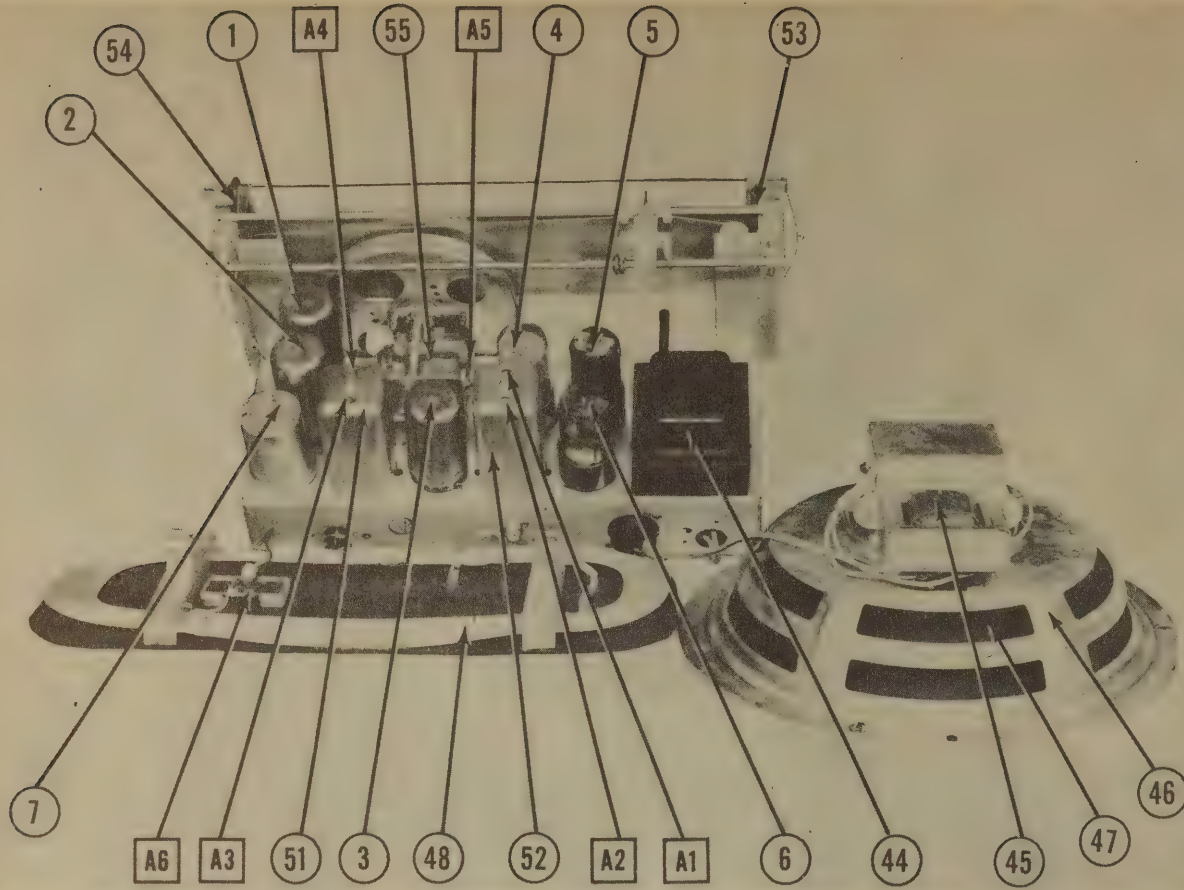
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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW



ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIR CHIEF PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7GT	6SK7GT	8N	
2	Converter	6SA7GT	6SA7GT	8AD	
3	IF Amp.	6SK7GT	6SK7GT	8N	
4	Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		AIR CHIEF PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	350	25180	DY-3X20-450	TEL-3231	FAF44414	Filter
B	500				LPK9150-10	"
C	250				TEL-312	"
8	.005	25031	S-6-005	TC-25	DT6D5	Line Bypass
9	.003	25194	S-6-003	TC-23	DT6D3	Tone Compensation
10	.002	25185	S-6-002	TC-22	DT6D2	"
11	.01	25194	S-6-01	TC-11	DT6S1	Audio Coupling
12	.003	25194	S-6-003	TC-23	DT6D3	Output Plate Bypass
13	.01	25194	S-6-01	TC-11	DT6S1	Audio Coupling
14	.005	25193	S-6-005	TC-25	DT6D5	Conv. Plate Decoupling
15	.1	25215	S-6-1	TC-1	DT6P1	Screen Bypass
16	.1	25215	S-6-1	TC-1	DT6P1	AVC Filter
17	.05	25198	S-6-05	TC-15	DT6S5	"
18	.05	25198	S-6-05	TC-15	DT6S5	"
19	240	25187	MO.5-325	1FM-325	SW5T25	Tone Compensation
20	100	25188	MO.5-31	1FM-31	SW5T1	Audio Plate Bypass
21	240	25187	MO.5-325	1FM-325	SW5T25	IF Bypass Diode
22	240	25193	MO.5-45	1FM-45	SW5Q5	Osc. Grid Capacitor
23	100	25188	MO.5-31	1FM-31	SW5T1	RF Coupling

†Do not use bypass section.

‡Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIR CHIEF PART No.	IRC PART No.	MALLORY PART No.	CLAROSTAT PART No.	
24A	3 Meg.	78119	TD257	D18-139X	AT-116	Volume Control
B	Shaft	Not Rec.	S285	F.	KSS-3	Attach to 24A per instructions
C	Switch	Not Rec.	M26	41	SW-A	"
25	2 Meg.	90148				Tone Control & Phono-Radio Switch

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		AIR CHIEF PART No.	IRC PART No.	
26	100K Ω	77214	BTS-100K	Br.-Blk.-Yl. AVC Network
27	4700K Ω	77211	BTS-4700	Yl.-Vl.-Red RF Plate Load
28	100K Ω	77214	BTS-100K	Br.-Blk.-Yl. Converter Grid
29	22K Ω	77266	BTS-22K	Red-Red-Or. Oscillator Grid
30	470K Ω	77261	BTS-470	Yl.-Vl.-Br. Converter Plate Decoupling
31	12K Ω	77155	BT-2-12K	Br.-Red-Or. Voltage Dropping
32	2.2 Meg.	77270	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
33	47K Ω	77213	BTS-47K	Yl.-Vl.-Or. Diode Filter
34	470K Ω	77217	BTS-470K	Vl.-Vl.-Yl. Diode Load
35	6.8 Meg.	77273	BTS-6.8 Meg.	Blue-Gray-Grn. 1st AF Grid
36	470K Ω	77217	BTS-470K	Yl.-Vl.-Yl. 1st AF Plate Load
37	470K Ω	77217	BTS-470K	Vl.-Vl.-Yl. Output Grid
38	270K Ω	77174	BA-1-270	Red-Vl.-Br. Output Cathode
39	220K Ω	77216	BTS-220K	Red-Red-Yl. Series Phono
40	22K Ω	77266	BTS-22K	Red-Red-Or. Tone Compensation
41	220K Ω	77216	BTS-220K	Red-Red-Yl. Tone Compensation
42	2200K Ω	77301	5T-2-2200	Red-Red-Filter
43	10K Ω	77258	Br.-Blk.-Br.	Br.-Blk.-Br.

PARTS LIST AND DESCRIPTIONS (Continued) **TRANSFORMER (POWER)**

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	AIR CHIEF PART No.	THORNDORSON PART No.	
44	1-7VAC	47WCT	8.6VAC	94025	T22R025	\$Dfill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	SEC.	AIR CHIEF PART No.	THORNDORSON PART No.	
45	5500Ω	42	400	94199	T22R46	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	NC I.D.P.	4Ω	AIR CHIEF PART No.	JENSEN PART No.	
46	P.	42	40	81124	ST-120* Mod. P10-S	*Charge output transformer to match 8Ω voice coil.
47	9-5/8"	1"				NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT.

R F COILS

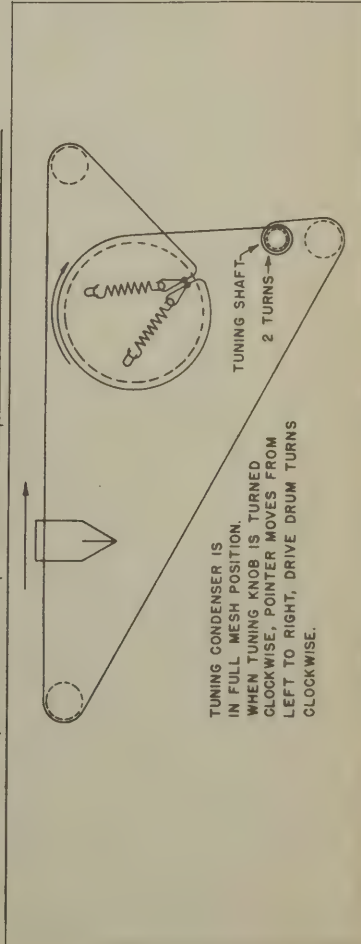
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIR CHIEF PART No.	MEISSNER PART No.	
48	Loop Ant.	.2Ω	1.2Ω	36632		
49	Wave Trap			36484		
50	osc. Coil	.02	5.5Ω	39483	14-1040	
51	Input IF	12.2Ω	12.1Ω	36536	16-6658	
52	Output IF	12.5Ω	12.2Ω	35537	16-6660	

DIAL LIGHT

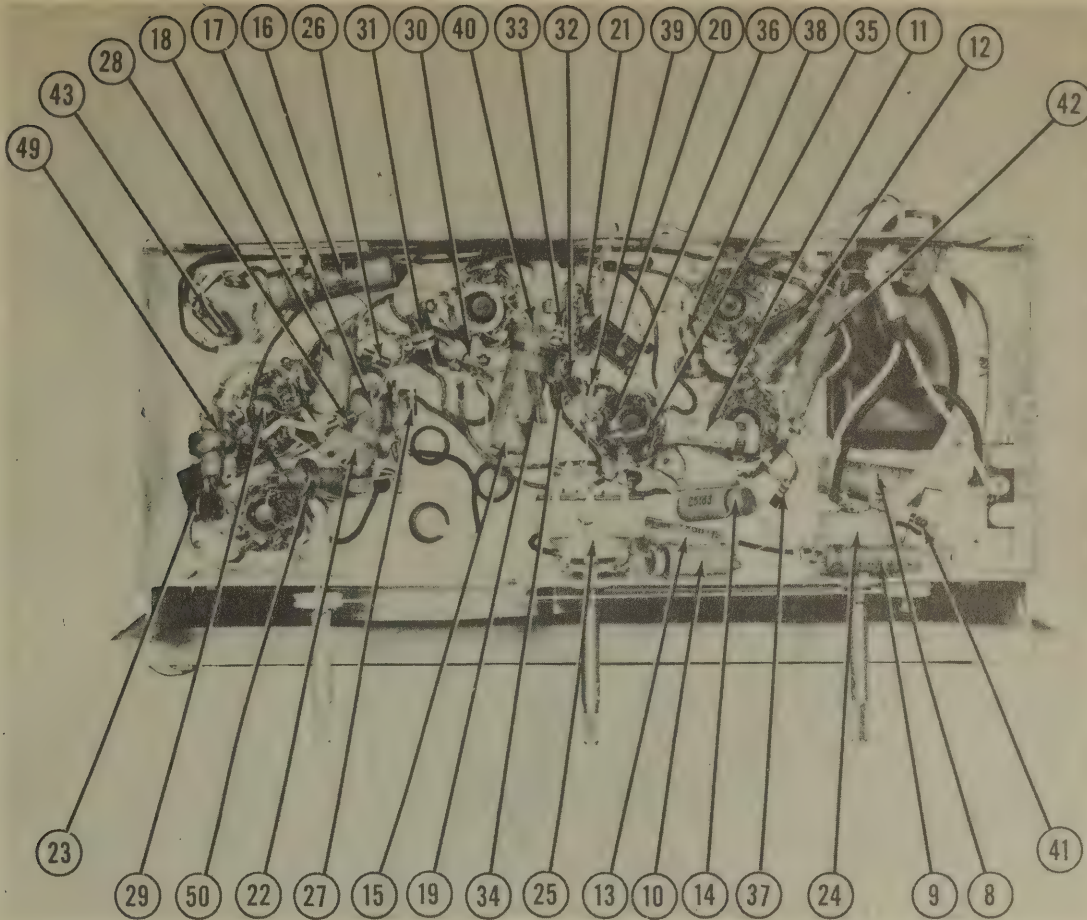
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIR CHIEF PART No.		
53	Bayonet	0-3	0.15	Blue	42185		Type 44 "
54	Bayonet	0-3	0.15	Blue	42155		

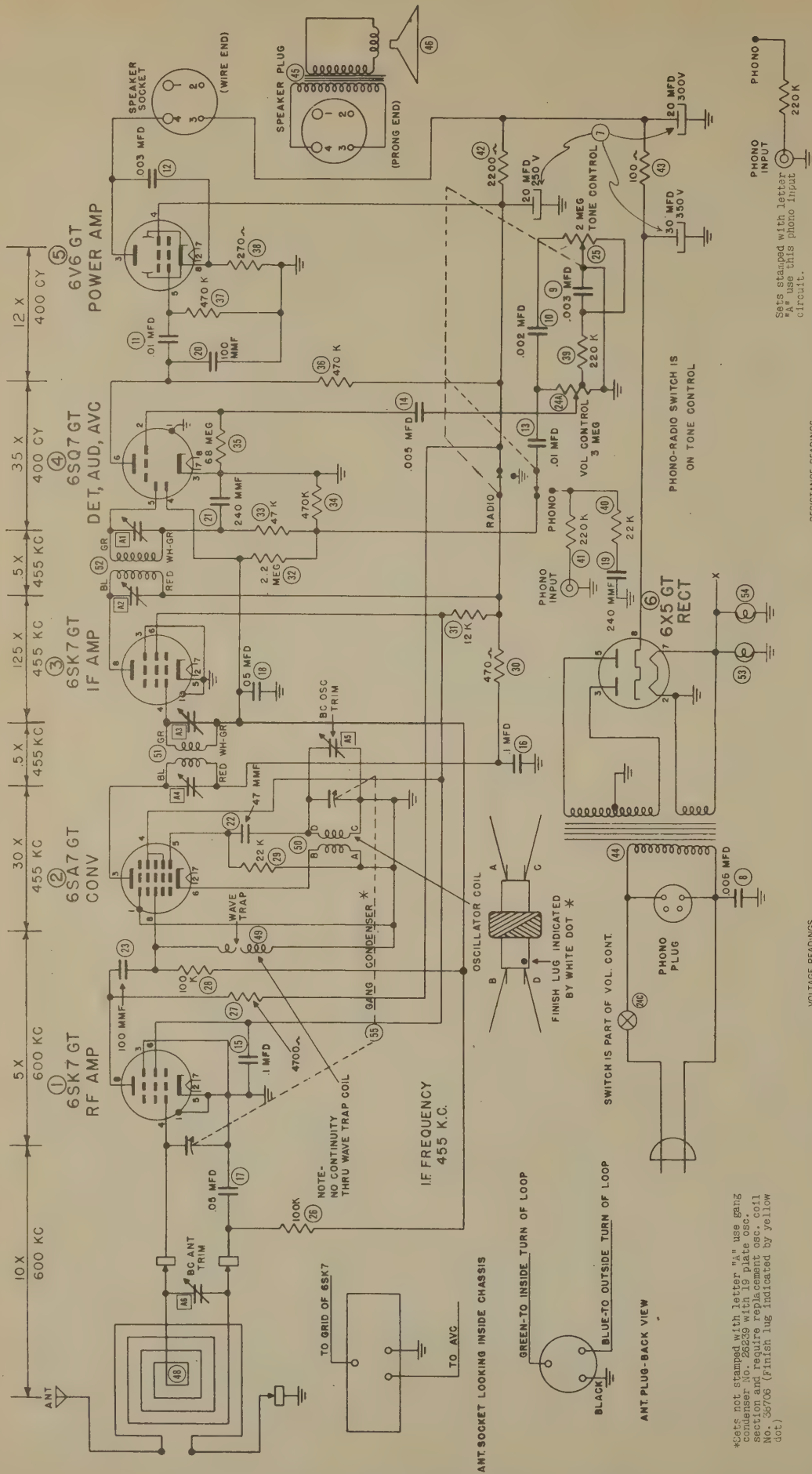
MISCELLANEOUS

ITEM No.	PART NAME	AIR CHIEF PART No.	NOTES
55	2 Gang Var. Cap	12154	(12-425 TRF, 30-196 TRF)
56	Trimmer	26032	Antenna Adjustment
57	Dial Pointer	11259	
58	Dial Glass	31287	
59	Knob	59264	



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0V	0V	0V	0V	0V	0V	0V	0V
2	6SA7GT	0V	0V	0V	0V	0V	0V	0V	0V
3	6SK7GT	0V	0V	0V	0V	0V	0V	0V	0V
4	6SQ7GT	0V	0V	0V	0V	0V	0V	0V	0V
5	6V6GT	0V	0V	0V	0V	0V	0V	0V	0V
6	6X5GT	0V	0V	0V	0V	0V	0V	0V	0V

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω
2	6SA7GT	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω
3	6SK7GT	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω
4	6SQ7GT	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω
5	6V6GT	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω
6	6X5GT	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

471-20

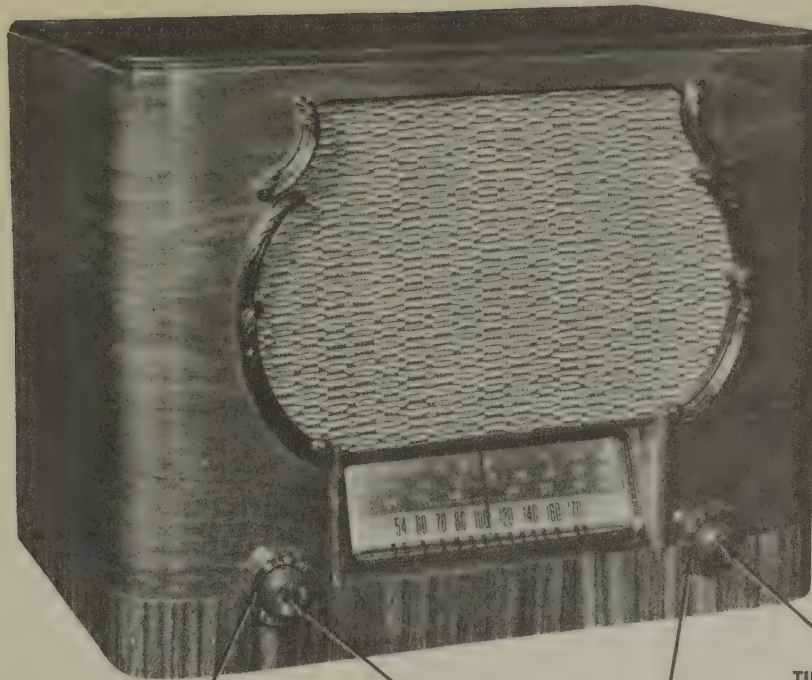
Sets stamped with letter "A" use this phono input circuit.

*Sets not stamped with letter "A" use gang condenser No. 26239 with 19 plate osc. section and equivalent tuning coil No. 35076 (Finish lug indicated by yellow dot.)

PHOTOFACT* Folder

SILVERTONE
MODELS 6230 (CH.101.802),
6230A (CH.101.802-1)

SILVERTONE
MODELS 6230 (CH.101.802),
6230A (CH.101.802-1)



TONE CONTROL

VOLUME CONTROL
ON-OFF SWITCH

BAND SWITCH

TUNING CONTROL

SILVERTONE
MODELS 6230 (CH.101.802),
6230A (CH.101.802-1)

SILVERTONE MODEL 6230A

TRADE NAME	Silvertone, Model 6230 (Ch. 101.802), 6230A (Ch. 101.802-1)
MANUFACTURER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FIVE)	Types, 1LG5 RF Amp., 1LC6 Osc.-Transl., 1LC5 IF Amp., 1LD5 Det.-AVC-AF, 1LB4 Power Output.
POWER SUPPLY	1 1/2 Volt "A" Battery & 90 Volt "B" Battery in Pack Form (Silvertone Pack #6300)
RATING	230 MA @ 1.4 Volts DC & 8 MA @ 96 Volts DC
TUNING RANGE—BROADCAST	540-1700KC
	SHORT WAVE 9.4-9.7MC, 11.6-12.0MC, 15.0-15.5MC.

ALIGNMENT INSTRUCTIONS

To set pointer, turn tuning control fully counter-clockwise and set pointer at the last reference mark at the left end of the dial. Set volume control at maximum volume and keep input from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screw-driver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 MF.	High side to pin #6 of 1LC6. Low side to chassis.	455KC	BC	Low freq. end.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
75 MF.	High side to ant. terminal. Low side to chassis.	1725KC	"	Last reference mark at right end of dial.	"	A5	"
75 MF.	"	"	"	Tune for maximum output.	"	A6,A7.	"
75 MF.	"	1500KC	"	1500KC	"	A8	"
75 MF.	"	"	"	Tune for maximum output.	"	A9,A10	"
400Ω	"	"	"	Last reference mark at right end of dial.	"	A11	Adjust so that top of core is 1 24/32" from the top turn of the coil.
400Ω	"	15.2MC	15MC	15.2MC	"	A12	Adjust for maximum output
400Ω	"	11.6MC	"	"	"	A13, A14.	Rock tuning control and adjust for maximum output
400Ω	"	11.6MC	11MC	11.6MC	"	A15.	Adjust for maximum output
400Ω	"	"	"	"	"	A16.	Rock tuning control and adjust for maximum output
400Ω	"	9.6MC	9MC	9.6MC	"	A18.	Adjust for maximum output
400Ω	"	"	"	"	"	A19, A20.	Rock variable and adjust.

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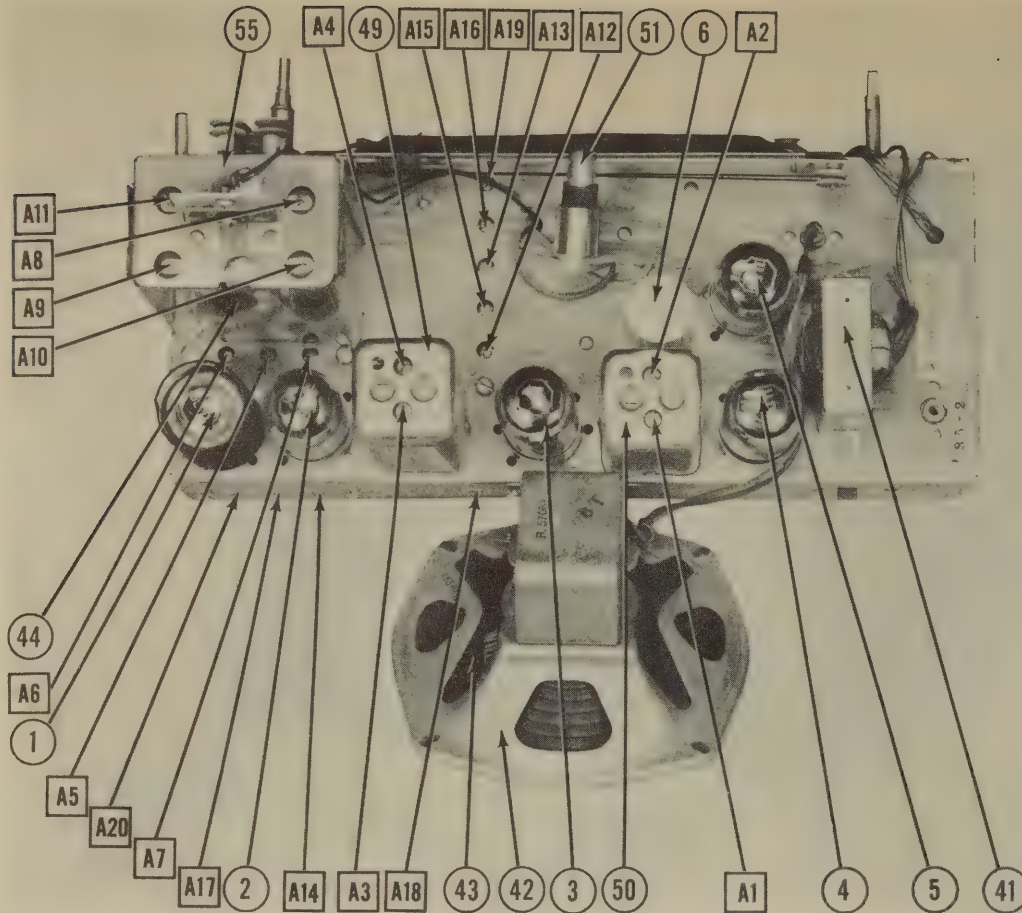
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Indianapolis Indiana

PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		SILVERTONE [®] PART No.	REPLACEMENT DATA				CORNEILL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT		SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.				
6A	10	150	R57128	DY-2X10-150	EL-101	AF22F	UP2215	FP217	Pwr. Supp. Bypass	
B	10	150							" " " "	
7	.05	200		S-4-05	TC-15	484-05	D74S5	TP423	" " " "	
8	.001	600		S-6-001	TC-21	684-001	D76D1	TP408	Output Plate Bypass	
9	.005	600		S-6-005	TC-25	684-005	D76D5	TP408	Audio Coupling	
10	.01	200		S-4-01	TC-11	484-01	D74S1	TP421	Audio Screen Bypass	
11	.001	600		S-6-001	TC-21	684-001	D76D1	TP404	Audio Coupling	
12	.01	200		S-4-01	TC-11	484-01	D74S1	TP421	Osc. Anode Decoupling	
13	.01	200		S-4-01	TC-11	484-01	D74S1	TP421	Corv. Screen Bypass	
14	.01	200		S-4-01	TC-11	484-01	D74S1	TP421	R ₁ Plate Decoupling	
15	.05	200		S-4-05	TC-15	484-05	D74S5	TP426	A/C Filter	
16	.01	200		S-4-01	TC-11	484-01	D74S1	TP421	Screen Bypass	
17	250	500		M0.5-325	1FM-325	1468-00025	5W5T25	MC240	Tone Compensation	
18	50	500		M0.5-45	1FM-45	1468-00005	5W5Q5	MC225	Audio plate bypass	
19	50	500		M0.5-45	1FM-45	1468-00005	5W5Q5	MC235	Osc. Grid Capacitor	
20	100	500		M0.5-31	1FM-31	1468-0001	5W5T1	MC235	RF Coupling	
21	250	500		M0.5-325	1FM-325	1469-00025	5W5T25	MC240	AVC Filter	
22	150	500		M0.5-315	1FM-315	1469-00015	5W5T15	MC236	AVC Coupling	

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
23A	Switch	R57071				Tone Switch - Front Section #
23B	500KΩ					Volume Control - Center Section #
23C	Switch					Off-On Switch - Rear Section #

This is a 3 section unit operated by concentric shafts.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	IRC PART No.	
24	1 Meg. 1/3 WATT				BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
25	3.3 Meg. 1/3 WATT				BTS-3.3 Meg.	Or.-Or.-Grn. " "
26	1 Meg. 1/3 WATT				BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
27	100KΩ 1/3 WATT				BTS-100K	Br.-Gray-Yl. Oscillator Screen Dropping
28	68KΩ 1/3 WATT				BTS-68K	Blue-Gray-Or. " "
29	600Ω 1/3 WATT				BTS-680	Blue-Gray-Br. Decoupling
30	2.2 Meg. 1/3 WATT				BTS-2.2 Meg.	Red-Red-Grn. AVC Network
31	50KΩ 1/3 WATT				BTS-50K	Or.-Or.-Or. Voltage Dropping
32	68KΩ 1/3 WATT				BTS-68K	Blue-Gray-Or. Screen
33	15 Meg. 1/3 WATT				BTS-15Meg.	Br.-Grn.-Blue 1st AF Grid
34	6.8 Meg. 1/3 WATT				BTS-6.8 Meg.	Blue-Gray-Grn. " "
35	1 Meg. 1/3 WATT				BTS-1 Meg.	Br.-Blk.-Grn. " "
36	.72KΩ 1/3 WATT				BW-2-68	V1.-Red-Silver Battery Saver
37	2.2 Meg. 1/3 WATT				BTS-2.2 Meg.	Red-Red-Grn. Output Grid
38	820Ω 1/3 WATT				BTS-820	Gray-Red-Br. Bias
39	180Ω 1/3 WATT				BTS-180	Br.-Gray-Red Battery Saver
40	680Ω 1/3 WATT				BTS-680	Blue-Gray-Br. Voltage Dropping

PARTS LIST AND DESCRIPTIONS (Continued) TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	SILVERTONE PART No.	STANCOR THORDARN PART No.	
41	1400Ω	5.4Ω	R57075	T-22S471	† Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		SILVERTONE PART No.	JENSEN PART No.	
42	FIELD	VC IMP.	ST-109 *	* Drill new mounting holes.
43	5"	5/8"	R57082	Mod. PG-W

R F COILS

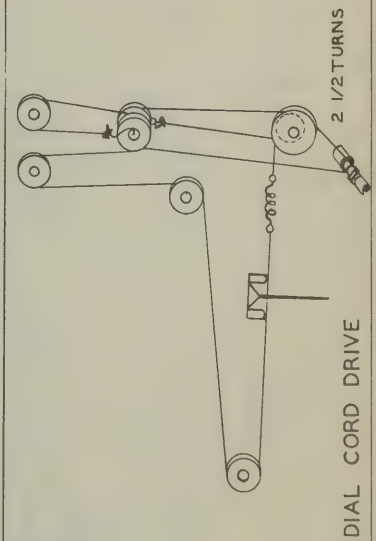
ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		DC RES.	MEISSNER PART No.	
44A	Ant. Coil	PRI.		Items 44A, 44B, 44C, 44D, ganged together and slug tuned. May be obtained as complete tuning unit under part # R57089.
44B	RF Coil BC	SEC.		
44C	RF Coil SW	6Ω		
44D	Osc. Coil	4Ω		
45	Ant. Choke	102Ω	R43255	
46	SW Ant. Coil	.2Ω	R45074	
47	SW RF Coil	.2Ω	R45077	
48	SW Osc. Coil	1.5Ω	R57078	
49	Input IF	10.5Ω	R57120	
50	Output IF	12Ω	R57095	

DIAL LIGHT

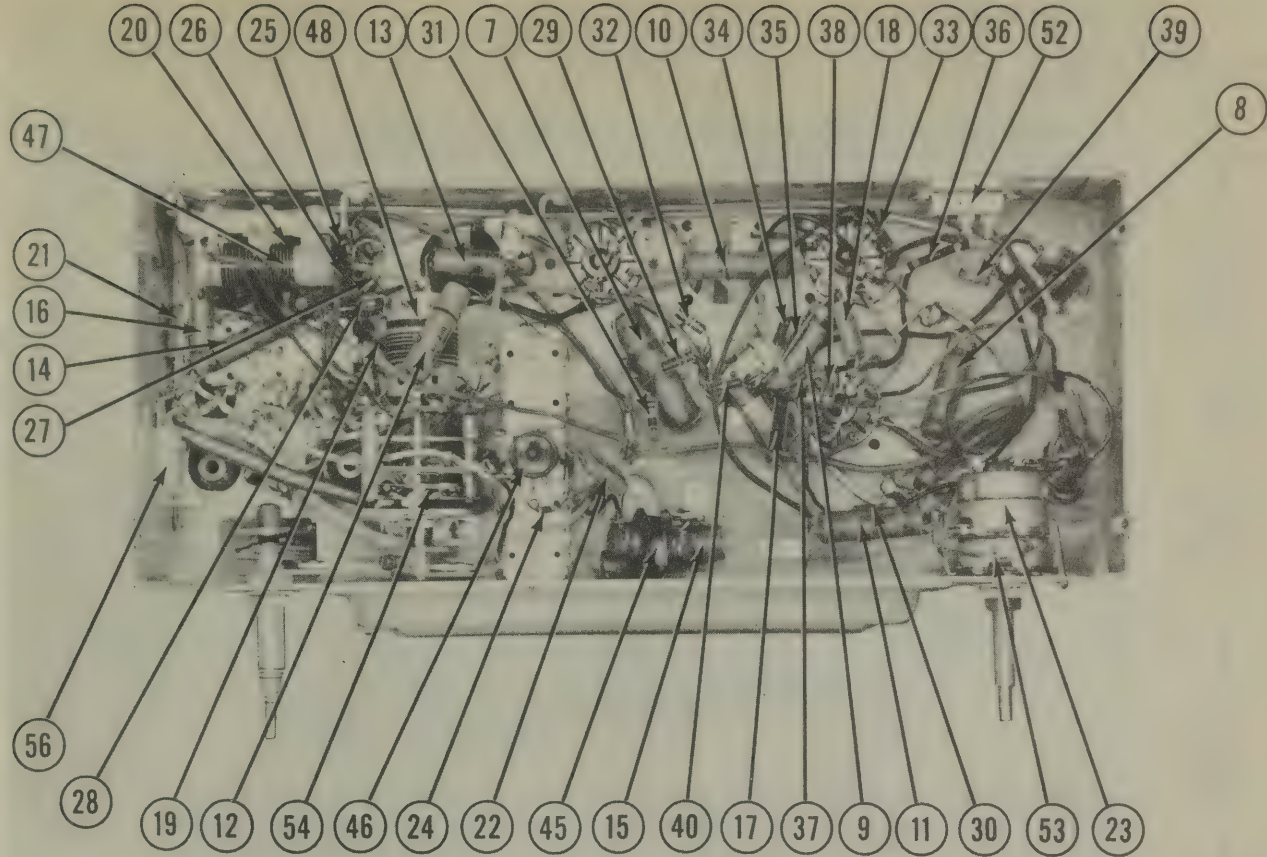
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	SILVERTONE PART No.	
51	Bayonet	2.5	0.5	White	R57129	Type 43

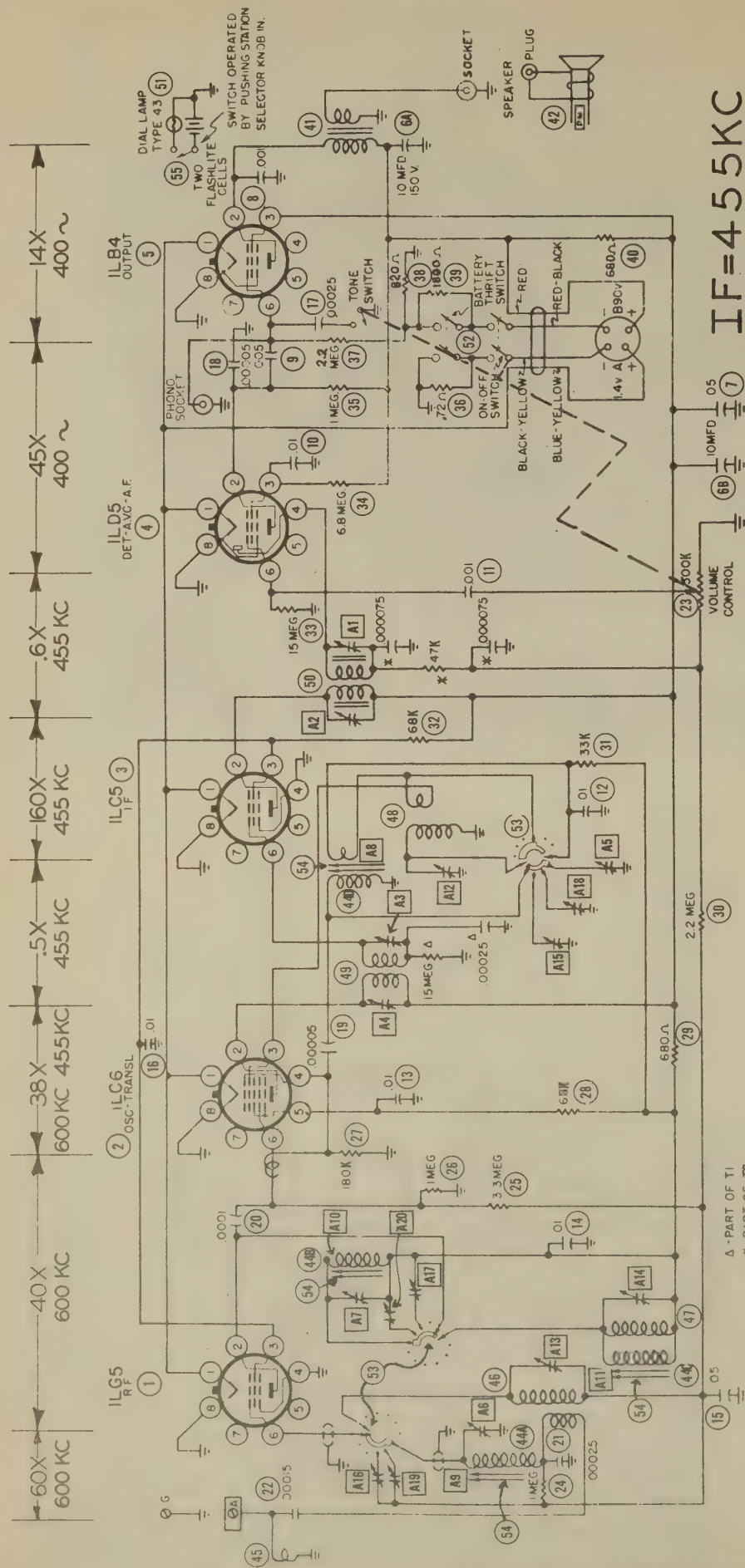
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
52	Batt. Thrift SW	R57038	
53	Band Switch	R57064	D.P.S.T.
54	Tuning Assembly	R57089	
55	Dial Light Switch		S.P.S.T.



CHASSIS—BOTTOM VIEW





NOTES: VOLTAGES AND RESISTANCES MEASURED WITH BATTERY SWITCH IN NEW POSITION BROADCAST TREFLE AND VOLUME CONTROL MAXIMUM.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LG5	14V,DC	73V,DC	38V,DC	OV.	OV.	OV.	OV.	OV.
2	1LC6	14V,DC	73V,DC	37V,DC	OV.	29V,DC	OV.	OV.	OV.
3	14V,DC	73V,DC	73V,DC	38V,DC	OV.	OV.	OV.	OV.	OV.
4	1LD5	14V,DC	30V,DC	18V,DC	-15V,DC	OV.	OV.	OV.	OV.
5	1LB4	14V,DC	73V,DC	72V,DC	OV.	OV.	-8V,DC	-6V,DC	OV.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LG5	*	150 K Ω	230 K Ω	0 Ω	INF.	2.2 MEG.	2.2 MEG.	0 Ω
2	1LC6	*	150 K Ω	185 K Ω	170 K Ω	220 K Ω	780 K Ω	135 K Ω	0 Ω
3	1LC5	*	150 K Ω	230 K Ω	0 Ω	INF.	6 MEG.	INF.	0 Ω
4	1LD5	*	1 MEG.	6 MEG.	420 K Ω	INF.	12 MEG.	INF.	0 Ω
5	1LB4	*	150 K Ω	150 K Ω	0 Ω	INF.	2 MEG.	720 Ω	0 Ω

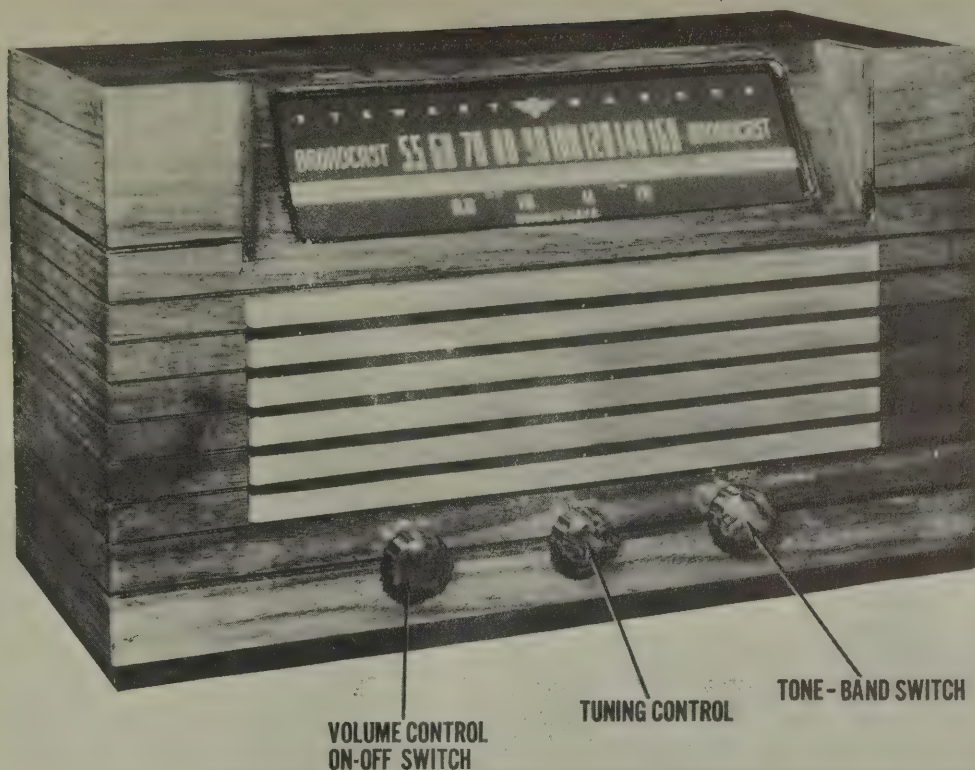
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to chassis.

1. DC Voltage measurements are at 20,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.



STEWART-WARNER MODEL 9000-B

TRADE NAME Stewart-Warner Model 9000-B
MANUFACTURER Stewart-Warner Corp., 1826 Diversey Pkwy., Chicago, Ill.
TYPE SET AC-DC 2 band Superheterodyne - Self Contained Loop Antenna
TUBES (SIX) Types, 12SK7 RF Amp., 12SA7 1st Det.-Osc., 12SF7 IF-2nd Det.-AVC, 12SK7 1st AF, 35L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 117 Volts AC-DC
TUNING RANGE—BROADCAST 540-1650KC

RATING .240 Amps. @ 117V AC
SHORT WAVE 9.0-12.0Mc

ALIGNMENT INSTRUCTIONS

To set pointer turn variable fully closed and set pointer at 1st reference mark at left end of dial back plate. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and B-. Set volume control at maximum volume and keep input from signal generator no higher than is necessary to obtain output reading. Care should be taken that the SW oscillator is aligned on the correct peak. To check, tune approximately 910KC below incoming signal. If image is not heard at this point turn to 12MC reference mark and open A8 to next peak. Then readjust A9 and recheck for image. Use insulated alignment screwdriver for adjustment.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
200 MMF	High side to pin #8 (Control grid) or 12SA7. Low side to B-.	455KC	BC	Any non-interfering point.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
200 MMF	High side to ext. ant. clip. Low side to chassis.	1500KC	"	1500KC reference mark (1st line at right)	"	A5	" " " "
200 MMF	"	"	"	Tune for maximum output.	"	A6,A7	" " " "
400Ω	"	12.0MC	SW	12MC reference mark (2nd mark from right)	"	A8	" " " "
400Ω	"	"	"	Tune for maximum output.	"	A9	Rock variable and adjust for maximum output.

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Indianapolis, Indiana

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PARTS LIST AND DESCRIPTIONS TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		STEWART-WARNER PART No.	STANDARD REPLACEMENT		
1	RF Amp.	12SK7	12SK7	8N	
2	1st Det.-Osc.	12SA7	12SA7	8R	
3	IF-2nd Det.-AVC	12SF7	12SF7	7A2	
4	1st AF	12SK7	12SK7	8N	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6XD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES AND INSTALLATION NOTES
		STEWART-WARNER PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	40 CAP.	500256	DY-4020-150	EL-24	UP4CJ594 Filter
8	150		S-4-05	TC-15	TP426 Rect. Bypass
9	400	502157	S-4-02	TC-12	TP423 Feedback
10	400	502152	S-4-01	TC-11	TP421 Output Plate Bypass
11	400	502151	S-6-06	TC-24	TP407 Audio Coupling
12	400	502153	S-4-05	TC-15	TP428 Audio Plate Decoupl.
13	400	502453	S-6-002	TC-22	TP405 Audio Coupling
14	400	502470	M0.3-38	MS-38	TP430 IF Bypass Vol. Cont.
15	200	502262	S-4-25	TC-2	TP429 Conv. Screen Bypass
16	400	502158	S-4-2	TC-1	TP428 Line Isolation
17	200	502155	S-4-1	TC-11	TP421 AVC Filter
18	400	502151	M0.5-31	LM-31	TP421 Ant. Coupling
19	110	502150	M0.5-31	LM-31	TP421 Audio Plate Bypass
20	110	502150	M0.5-31	LM-31	TP421 IF Bypass
21	50	502159	M0.5-45	LM-45	TP421 Osc. Grid Capacitor
22	315				TP421 Fixed Padder SW
54	10	502162			TP421 Fixed Trimmer *

* Do not use bypass section.

* Not used in all models.

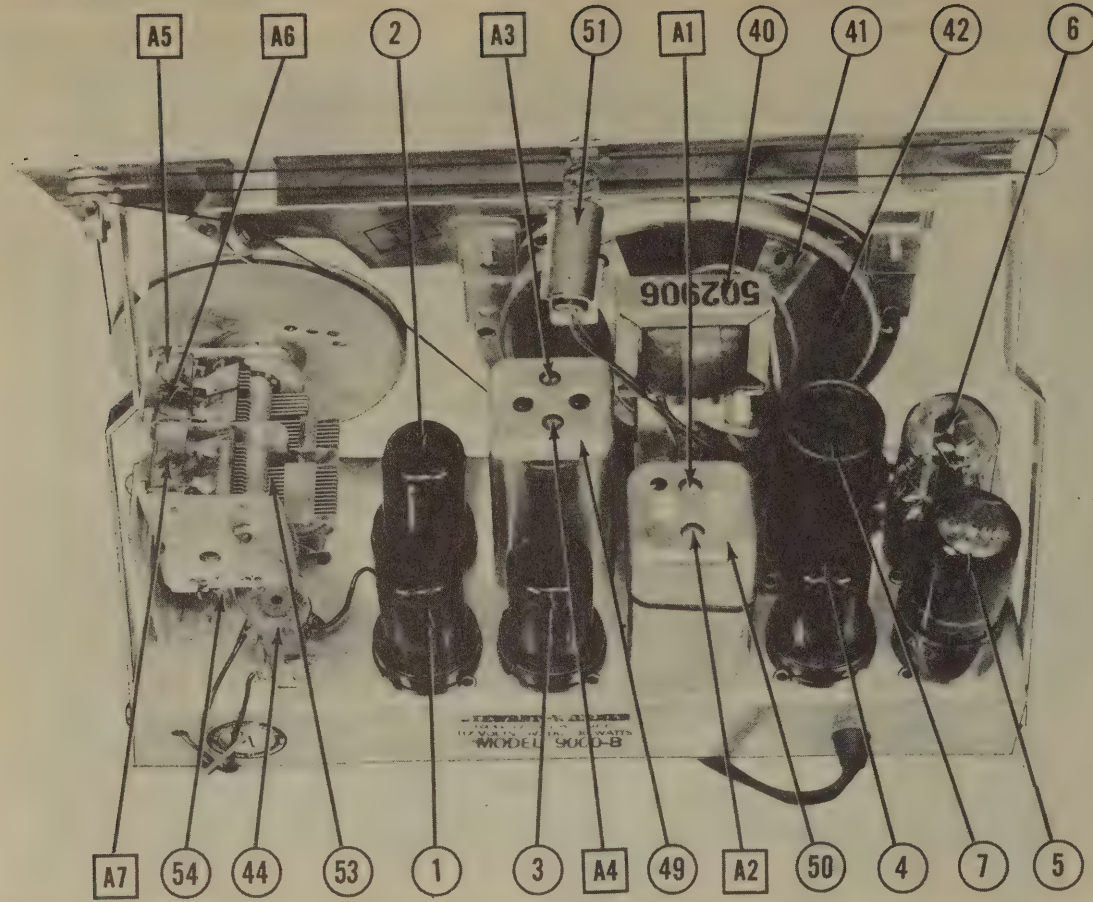
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		STEWART-WARNER PART No.	MALLORY PART No.	IRC PART No.	
23A	500KΩ B Shunt C Switch	502145 Not Req.	MK401 Y26	D13-133 E 41	Volume Control Attach to 52A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		STEWART-WARNER PART No.	MALLORY PART No.	IRC PART No.	
24	390Ω	502140	BW-1-390	BTS-22K	Or.-White-br. RF Cathode
25	22KΩ	502130	BTS-22K	BTS-22K	Red-Red-or. Oscillator Grid
26	220KΩ	502133	BTS-220K	BTS-220K	Red-Red-yl. Line Isolation
27	4700Ω	502891	BTS-4700	BTS-4700	Yl.-Vl.-Red Mixer Screen Dropping
28	3.3 Meg.	502264	BW-2-47	BW-2-47	Or.-Or.-Grn. AVC Network
29	47KΩ	502131	BTS-47K	BTS-47K	Yl.-Vl.-Blk. IF Cathode
30	10 Meg.	502136	BTS-10 Meg.	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
31	220Ω	502128	BTS-220	BTS-220	Red-Red-Grn. " Cathode
32	2.2 Meg.	502135	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn. " Screen Dropping
33	220KΩ	502133	BTS-220K	BTS-220K	Red-Red-yl. " Plate Load
34	220KΩ	502133	BTS-220K	BTS-220K	Red-Red-yl. " Decoupling
35	470KΩ	502134	BW-1-150	BW-1-150	Yl.-Vl.-Yl. Output Grid
36	150Ω	502134	BW-1-150	BW-1-150	Br.-Or.-Br. " Cathode
37	150Ω	502134	BW-1-150	BW-1-150	Br.-Or.-Br. " Cathode
38	150Ω	502134	BW-1-150	BW-1-150	Br.-Or.-Br. " Cathode
39	330Ω	502574	BW-2-33	BW-2-33	Or.-Or.-Blk. Rectifier Ballast.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)
TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	SEC. 3	STEWART-WARNER PART No.	THORDARSON PART No.
40A	2700Ω	3.9Ω	240Ω	.8Ω	502213	A-3878 ‡
40B					504244 } 502904 }	ALTERNATE TRANSFORMERS

‡ Bend mounting tabs down and mount on original bracket.

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		STEWART-WARNER PART No.	JENSEN PART No.	
41	FIELD RES. VC IMP. 14Ω	R-502998 A-502998 W-502998	ST-107† P5-V	†Fabricate new mounting bracket.
42	SOLE Dia. VC Dia. 2"	502214 502903 504244		Use on R-502998 " " A-502998 " " W-502998

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	STEWART-WARNER PART No.	MEISSNER PART No.	
43	Loop Ant.	∞	.1Ω	502503		
44	Ant. Cap. Coil	.7Ω	.3Ω	502421		
45	SW Ant. Coil	.5Ω	∞	502740		
46	BC RF Coil	77Ω	7.8Ω	502142		
47	dc Osc. Coil	1.5Ω	11Ω	502198		
48	SW Osc. Coil	.1Ω	.1Ω	502197		
49	Input IF	20Ω	20Ω	502102	16-3858	
50	Output IF	19Ω	19Ω	502103	16-3860	

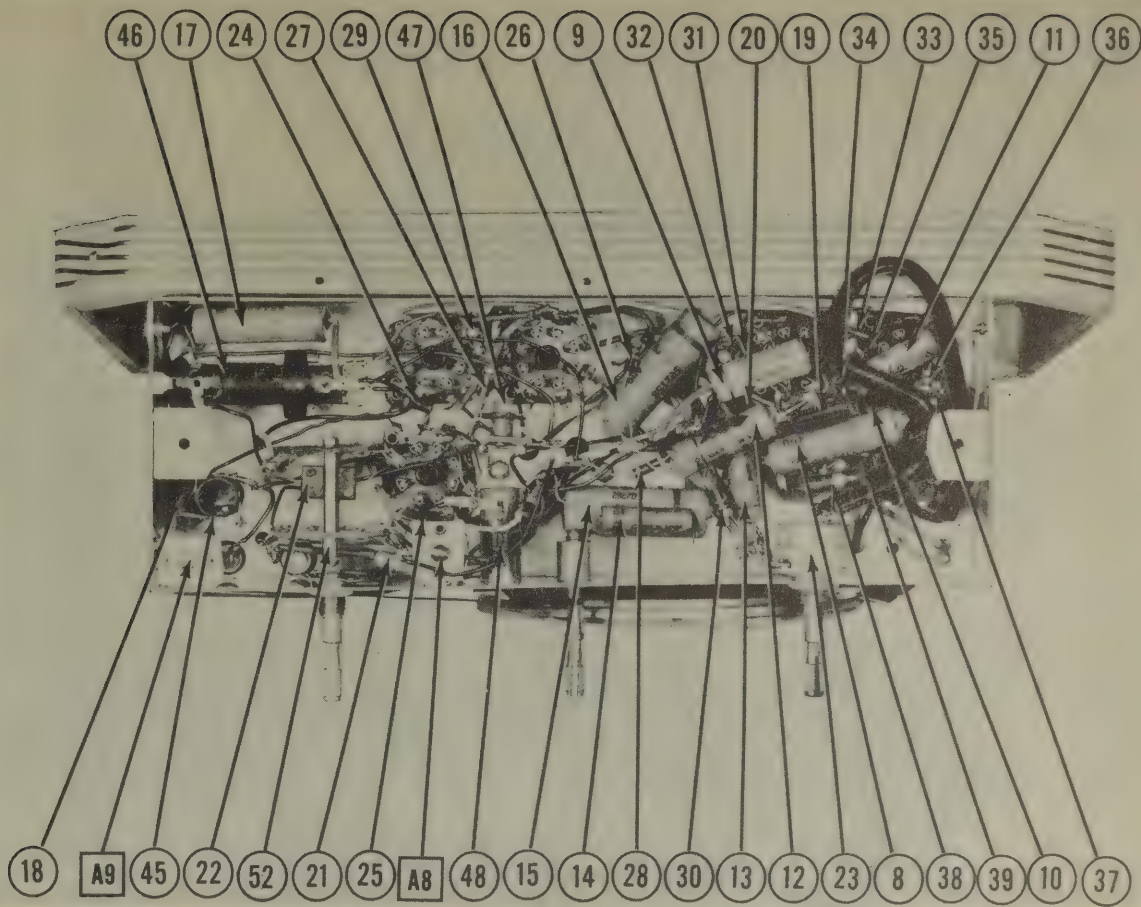
DIAL LIGHT

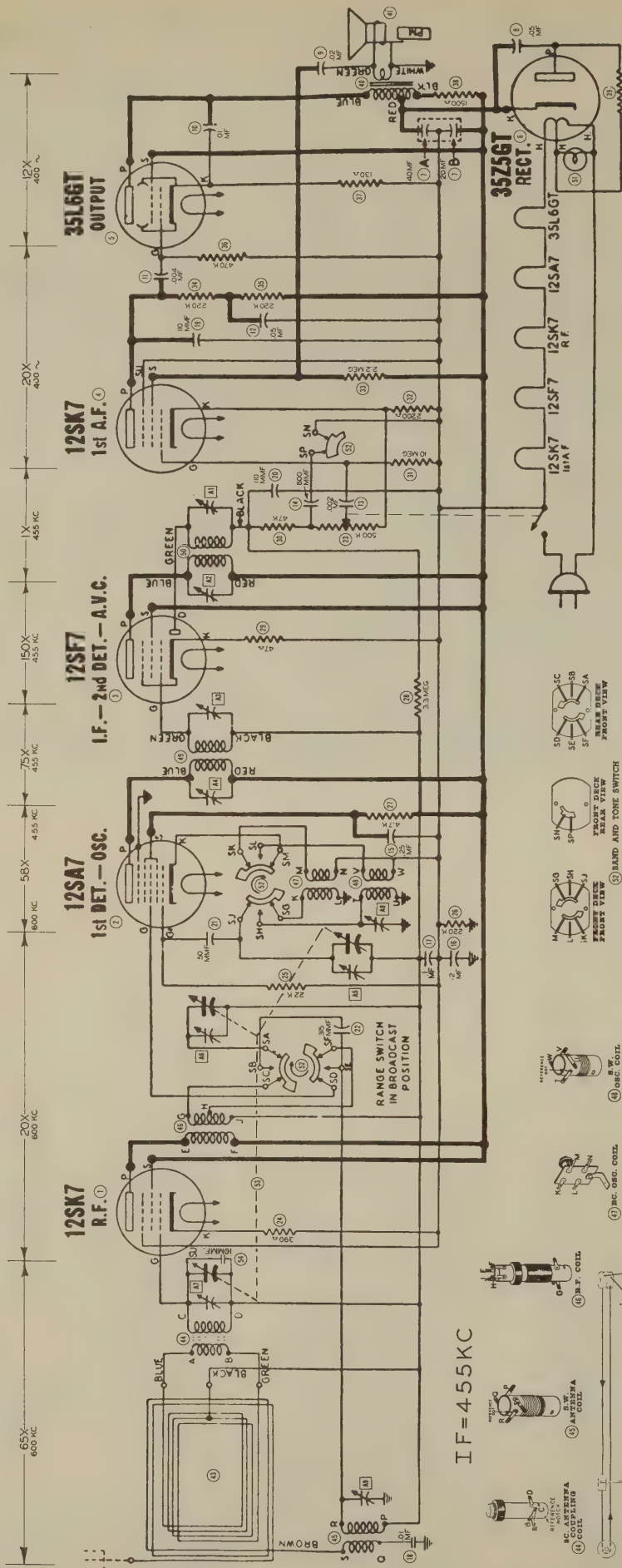
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	STEWART-WARNER PART No.	
51	Rayonet	6-8	0.15	Brown	502473	Type 47

MISCELLANEOUS

ITEM No.	PART NAME	STEWART-WARNER PART No.	NOTES
52	Switch	502199	band and tone
53	5 kΩ Var. Cap.	502123	Osc. Rf & Ant. Trimmers Incl.
48	49 Trimmer Cap.	502172	SW Osc. Adj. 25-100 MFD.
49	"	502112	SW Ant. Adj. 25-100 MFD.
	Dial Scale	502221	Glass
	Knob	501776	Volume or Tuning
	"	501779	Tone & band Switch

CHASSIS—BOTTOM VIEW





NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

Pin	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	-2V.DC.	25V.DC.	ON.	-25V.DC.	25V.DC.	77V.DC.	12V.DC.	12V.DC.
2	12SA7	-2V.DC.	42V.DC.	77V.DC.	58V.DC.	5.2V.DC.	ON.	12V.DC.	12V.DC.
3	12SF7	-2V.DC.	42V.DC.	77V.DC.	58V.DC.	5.2V.DC.	ON.	12V.DC.	12V.DC.
4	35L6GT	-2V.DC.	42V.DC.	77V.DC.	58V.DC.	5.2V.DC.	ON.	12V.DC.	12V.DC.
5	35Z5GT	-2V.DC.	42V.DC.	77V.DC.	58V.DC.	5.2V.DC.	ON.	12V.DC.	12V.DC.
6	35Z5GT	-2V.DC.	42V.DC.	77V.DC.	58V.DC.	5.2V.DC.	ON.	12V.DC.	12V.DC.

RESISTANCE READINGS

Pin	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	400Ω	300Ω	300Ω	300Ω	300Ω	300Ω	300Ω	300Ω
2	12SA7	400Ω	300Ω	300Ω	300Ω	300Ω	300Ω	300Ω	300Ω
3	12SF7	400Ω	300Ω	300Ω	300Ω	300Ω	300Ω	300Ω	300Ω
4	35L6GT	400Ω	300Ω	300Ω	300Ω	300Ω	300Ω	300Ω	300Ω
5	35Z5GT	400Ω	300Ω	300Ω	300Ω	300Ω	300Ω	300Ω	300Ω
6	35Z5GT	400Ω	300Ω	300Ω	300Ω	300Ω	300Ω	300Ω	300Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

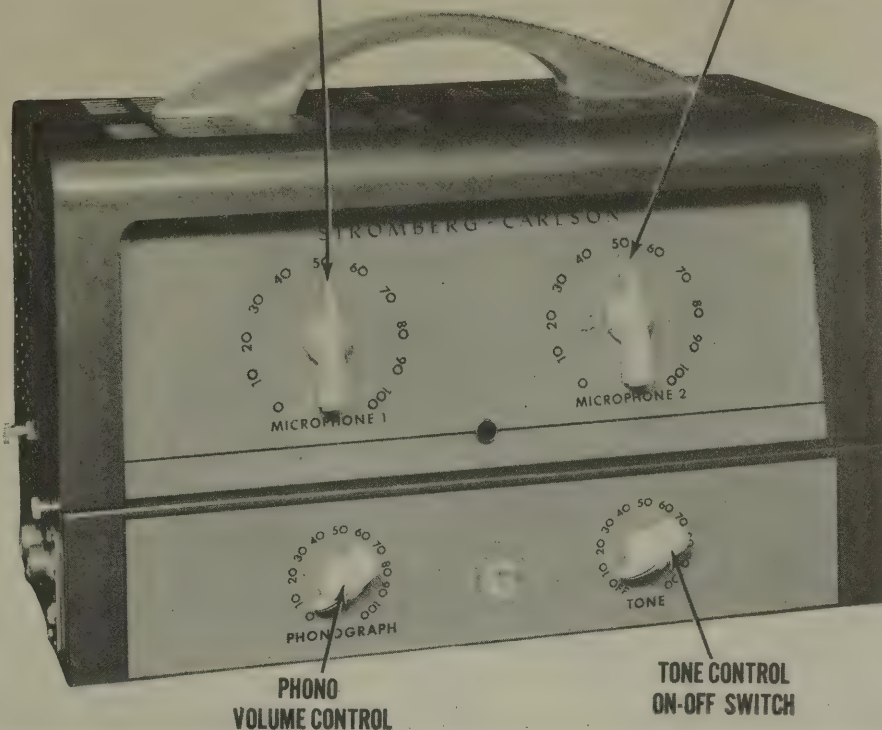
1. Use the 600KC signal with 400-cycle modulation connected as shown on schematic. (Use nearby frequency if local station interferes.)
2. For RF & IF measurements, connect negative terminal of 1½ Volt battery to AVC lead and the positive terminal to chassis.
3. Be sure radio is carefully tuned to signal generator frequency. (Use weak signal for sharper tuning.)
4. DC Voltage measurements are at 20,000 ohms per volt. AC voltages measured at 1000 ohms per volt.
5. Socket connections are shown as bottom views.
6. Measured values are from socket pin to common negative.
7. Line voltage maintained at 117 volts for voltage readings.
8. Nominal tolerance on component values makes possible a variation of ±10% in voltage and resistance readings.
9. Volume control at maximum, no signal applied for voltage measurements.

DIAL AND POINTER

TO STRETCH DIAL CORD AND TENSION SPRING TO FULLY MESHED POSITION AND USE FOLLOWING INSTRUCTIONS:
1. 117057 Cord (58 inches)
2. 117058 Tension Spring
3. 117059 Dial Cord (58 inches)
4. 117060 Tension Spring

MIC 1 CONTROL

MIC 2 CONTROL



STROMBERG-CARLSON MODEL 32

TRADE NAME	Stromberg-Carlson, Model 32
MANUFACTURER	Stromberg-Carlson Co., 100 Carlson Rd., Rochester 3, N.Y.
TYPE SET	AC Operated 15 Watt 6 Tube Amplifier
TUBES (SIX)	Types 6SC7 Pre-Amp., 6J5 Audio Amp., 6SC7 Driver-Inverter, 2-6L6G Push-Pull Power Output, 5Y3GT Rectifier
POWER SUPPLY	105-125 Volts AC
RATING	.870 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SC7	OV.	73V.DC	OV.	OV.	78V.DC	1.1V.DC	⌘	⌘
2	6J5	OV.	⌘	42V.DC	OV.	OV.	OV.	⌘	1.7V.DC
3	6SC7	OV.	124V.DC	OV.	OV.	115V.DC	1.3V.DC	⌘	⌘
4	6L6G	OV.	⌘	370V.DC	340V.DC	OV.	OV.	⌘	24.5V.DC
5	6L6G	OV.	⌘	370V.DC	350V.DC	OV.	OV.	⌘	24.5V.DC
6	5Y3GT	OV.	380V.DC	OV.	320V.AC	OV.	320V.AC	OV.	380V.DC

⌘ NOTE: MEASURE 6.6V. BETWEEN TERMINALS 2 AND 7 ON TUBES 2,4, AND 5, AND TERMINALS 7 AND 8 ON TUBES 1 AND 3.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SC7	0 Ω	340K Ω	850K Ω	870K Ω	340K Ω	1.4K Ω	⌘	⌘
2	6J5	0 Ω	⌘	210K Ω	INF.	590K Ω	INF.	⌘	1.8K Ω
3	6SC7	0 Ω	300K Ω	490K Ω	10K Ω	340K Ω	1.3K Ω	⌘	⌘
4	6L6G	0 Ω	⌘	52K Ω	52K Ω	310K Ω	INF.	⌘	180 Ω
5	6L6G	0 Ω	⌘	52K Ω	52K Ω	310K Ω	INF.	⌘	180 Ω
6	5Y3GT	INF.	52K Ω	0 Ω	75 Ω	INF.	80 Ω	INF.	52K Ω

⌘ NOTE: MEASURE 2 Ω BETWEEN TERMINALS 2 AND 7 ON TUBES 2,4, AND 5, AND TERMINALS 7 AND 8 ON TUBES 1 AND 3.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		STROM-CARLSON PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Dual Pre-amp.	6SC7	6SC7	8S	
2	Audio Driver-Inverter	6J5	6J5	6Q	
3	Power Output	6L6G	6L6G	7AC	
4	Power Output	6L6G	6L6G	7AC	
5	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		STROMBERG CARLSON PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	40 CAP.	35590	DY-406 *	EL-424	AF4444J †	UP9BJ39
7B	450					
7C	300					
7D	50					
8A	10 CAP.	34698	M-50-50	TA-50	PRS50-50	LR505
8B	10		DI-4X10-450	EL-511	AF2222J	UP7DJ51 *
8C	10					
8D	250					
9	50	41157	M-25-50	TA-525	PRS50-25	BR205
10	25	25483	TA-50	TA-50	PRS50-50	BR502
11	1.0	400	S-4-1	TC-1	484-1	DT4P1
12	0.5	400	S-4-05	TC-15	484-05	DT4S5
13	0.05	400	S-4-05	TC-15	484-05	DT4S5
14	0.01	600	S-6-01	TC-11	684-01	DT6S1
15	0.05	400	S-4-05	TC-15	484-05	DT4S5
16	0.05	400	S-4-05	TC-15	484-05	DT4S5
17	500	27009	NO-5-35	1F1-35	1488-0005	5W5T5

* Do not use bypass section.

† Do not use one 10 MFD. section.

‡ Parallel sections to obtain desired capacity.

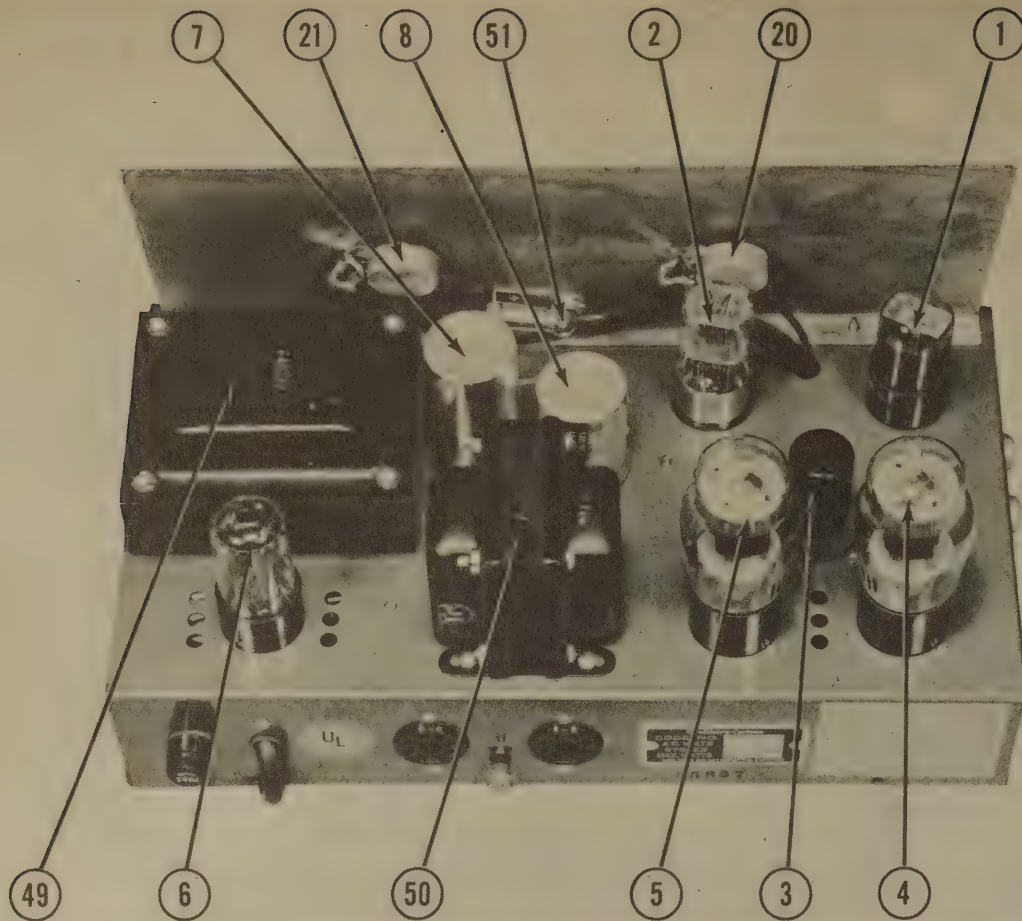
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		STROMBERG CARLSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	1 Meg. Shaft	39838	UM159	D11-137	M-51-S	Tone Control.
18B	1 Meg. Switch	Not Req.	Not Req.	A	Not Req.	Attach to 18A per instructions
19A	1 Meg. Shaft	46313	MR53	41	Sw-A	Phono Control.
20A	1 Meg. Shaft	46313	MR53	D13-137	M-63-Z	Attach to 19A per instructions
21A	1 Meg. Shaft	46313	MR53	D13-137	M-63-Z	Mike #1 Control.
21B	1 Meg. Shaft	46313	MR53	D13-137	M-63-Z	Attach to 20A per instructions
22	1 Meg. Shaft	Not Req.	Not Req.	A	Not Req.	Mike #2 Control.
23	1 Meg. Shaft	Not Req.	Not Req.	A	Not Req.	Attach to 21A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		STROMBERG CARLSON PART No.	IRC PART No.	
22	1 Meg.	28191	BTS-1 Meg.	Br.-51k.-Grn. 1st Pre-Amp. Grid
23	1 Meg.	28191	BTS-1 Meg.	Br.-51k.-Grn. 2nd
24	1500Ω	28160	BTS-1500	Br.-Grn.-Red Pre-Amp. Cathode
25	330KΩ	28185	BTS-330K	Or.-Or.-Yl. 1st Pre-Amp. Plate Load.
26	330KΩ	28185	BTS-330K	Or.-Or.-Yl. 2nd

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	STROMBERG-CARLSON PART No.	IRC PART No.	
27	1 meg.	2	28191	BTS-1 Meg.	Or.-Blk.-Jrm. Audio Grid
28	1 meg.	2	28191	BTS-1 Meg.	Or.-Blk.-Jrm. " "
29	47K	2	70056	BT-2-47K	Yl.-Yl.-Or. Bleeder
30	2200Ω	2	30616	BTA-2200	Red-Red-Red Voltage Dropping
31	10K	1	30417	BTA-10K	Br.-Blk.-Or. " "
32	10K	1	30417	BTA-10K	Br.-Blk.-Or. " "
33	3500Ω	1	46360	AB-3500	Filter
34	100K	2	28006	BTS-100K	Br.-Blk.-Yl. Audio Plate Load
35	100K	2	28006	BTS-100K	Br.-Blk.-Yl. " Cathode
36	2.0Ω	2	28182	BTS-2200	Red-Red-Red " Cathode
37	1 meg.	2	28191	BTS-1 Meg.	Br.-Blk.-Jrm. Driver Grid
38	1500Ω	2	28191	BTS-1500	Or.-Blk.-Jrm. Feedback
39	330K	2	28185	BTS-330K	Or.-Jrm.-Red Driver Cathode
40	330K	2	28185	BTS-330K	Or.-Or.-Yl. Phase Inverter Plate Load
41	330K	2	28185	BTS-330K	Or.-Or.-Yl. Driver Plate Load
42	330K	2	28185	BTS-330K	Or.-Or.-Yl. Output Grid
43	330K	2	28185	BTS-330K	Or.-Or.-Yl. " "
44	10K	2	28170	BTS-10K	Or.-Blk.-Or. Phase Inverter Grid
45	200Ω	2	46357	AB-200	Output-Cathode
46	100Ω	2	28191	BW-1-100	Br.-Blk.-Br. Filament Shunt See Note
47	100Ω	2	28191	BW-1-100	Br.-Blk.-Br. " "
48	1 meg.	2	28191	BTS-1 Meg.	Br.-Blk.-Jrm. Audio Grid

Note: Some models use center tapped filament winding and omit these parts.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	STROMBERG CARLSON PART No.	STANCOR PART No.	THORDARSON PART No.	
49	117V AC ② .87A	720V CT ③ .130A	5.1V AC ③ 1.8A	6.6V AC ③ 2.6A	46316	P-6314 #	T22R07	# Drill new mounting holes.

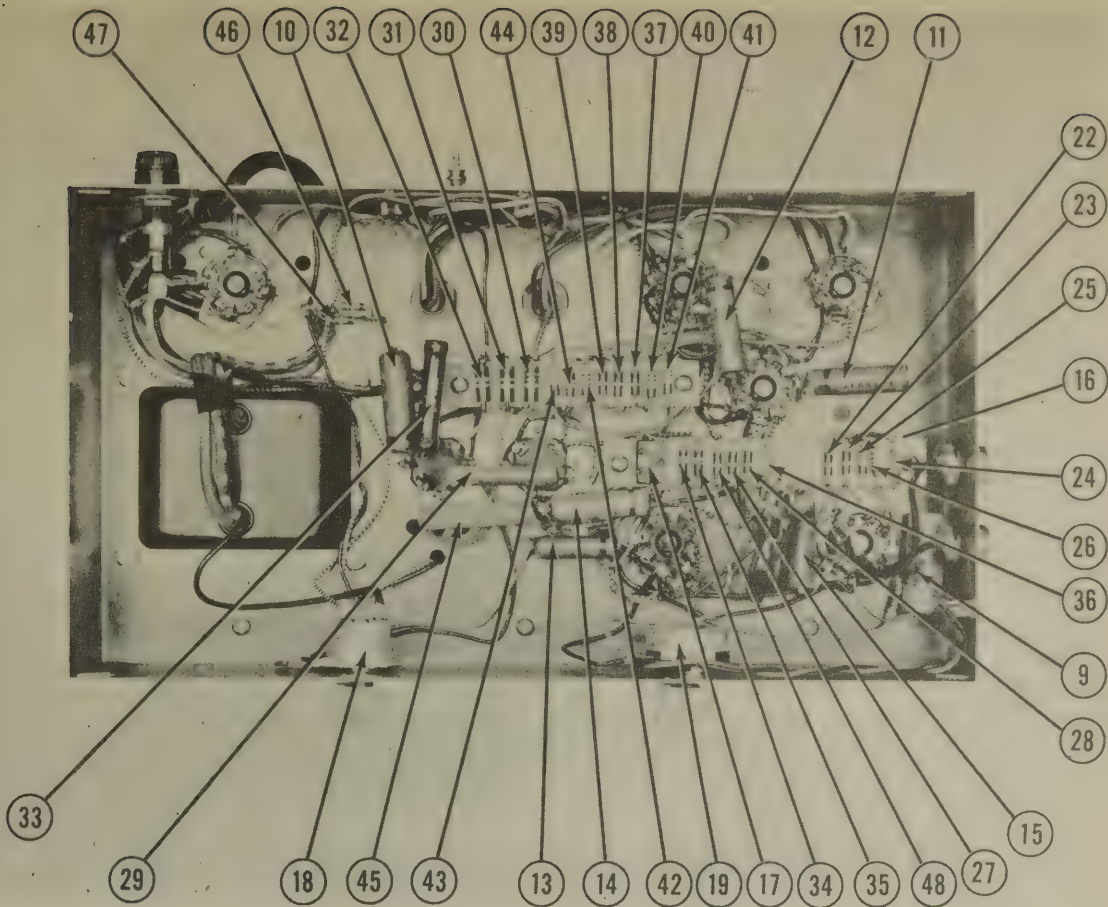
TRANSFORMER (OUTPUT)

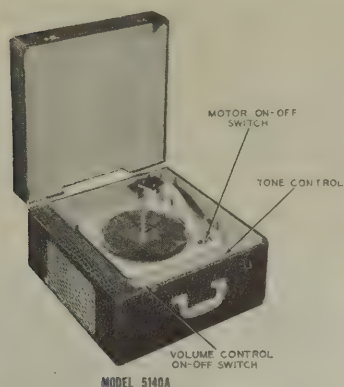
ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE		DC RES.		STROMBERG CARLSON PART No.	THORDARSON PART No.	
	PRI.	SEC.	PRI.	SEC.			
50	8200 Ω CT	500Ω 15Ω	280Ω CT	16Ω .75Ω	46317	A-3885 # T22566	# Drill new mounting holes.
		8Ω		.6Ω			
		4Ω		.44Ω			

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					STROMBERG-CARLSON PART No.	THORDARSON PART No.	
51	Bayonet	6-8	0.2	White	28025		Type 51

CHASSIS—BOTTOM VIEW





TELEQUIP MODELS 5135, 5136, 5140A

TRADE NAME Telequip, Models 5135, 5136, 5140A
MANUFACTURER Telequip Radio Co., 1901 S. Washtenaw Ave., Chicago, Ill.
TYPE SET Automatic record player with 4 tube amplifier and speaker
TUBES (FOUR) Types 12SN7GT AF Amp.-Phase Inverter, 2-12SN7GT Power Output
 12SN7GT Rectifier

POWER SUPPLY 105-120 volts AC **RATING** .355 Amp. @ 117 Volts AC

NOTE: ALL READINGS TAKEN FROM SWITCH ON VOLUME CONTROL UNLESS OTHERWISE NOTED.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SN7GT	0V.	32V.DC	1.8V.DC	20.5V.DC	90V.DC	28V.DC	94V.AC	82V.AC
2	12SN7GT	*0V.	*243V.DC	*91V.DC	*0V.	*243V.DC	*91V.DC	106V.AC	94V.AC
3	12SN7GT	*0V.	*245V.DC	*91V.DC	*0V.	*245V.DC	*91V.DC	82V.AC	69V.AC
4	12SN7GT	117V.AC	117V.AC	*245V.DC	*86V.DC	*86V.DC	117V.AC	106V.AC	118V.AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SN7GT	1.9 MEG.	260 K Ω	430 Ω	85 K Ω	85 K Ω	46 K Ω	212 Ω	206 Ω
2	12SN7GT	*510 K Ω	*100 K Ω	*440 Ω	*510 K Ω	*100 K Ω	*440 Ω	217 Ω	212 Ω
3	12SN7GT	*410 K Ω	*100 K Ω	*440 Ω	*410 K Ω	*100 K Ω	*440 Ω	206 Ω	200 Ω
4	12SN7GT	217 Ω	217 Ω	*120 K Ω	*430 Ω	*430 Ω	217 Ω	217 Ω	222 Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
 ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

* READINGS TAKEN FROM JUNCTION OF 470 K Ω GRID RESISTORS OF POWER OUTPUT TUBES (2&3).

- DC Voltages measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		TELEQUIP PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	A.F. Amp-Pa. Inv.	12SN7GT	12SN7GT	8BD	
2	Power Output	12SN7GT	12SN7GT	8BD	
3	Power Output	12SN7GT	12SN7GT	8BD	
4	Rectifier	12SN7GT	12SN7GT	8BD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		TELEQUIP PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
5 A	40		D3B-2X40-150	TA-440	FRS150-40-40	BRD4415	2N511 Filter
5 B	40						Filter - Red *
5 A	50		M-5030-150	TA-530	FRS150-40-40	BRD2515	2N520 Filter
6	40		M-40-150	UT-401	PR8150-40	BR4015	TC48 Line Isolation
7	40		M-40-150	UT-401	PR8150-40	BR4015	TC48 Line Isolation
8	.1		S-4-1	TC-1	484-.1	DT4P1	TP428 Audio Coupling
9	.05		S-4-05	TC-15	484-05	DT4S5	TP426 Tone Compensation
10	.05		S-4-05	TC-15	484-05	DT4S5	TP421 Audio Coupling
11	.05		S-4-01	TC-11	484-01	DT4S1	TP426 Photo Isolation
12	.05		S-4-05	TC-15	484-05	DT4S5	TP428 Audio Plate Express
13	.1		S-4-1	TC-1	484-1	DT4P1	
14	500		MO-5-35	MFY-35	1468-0005	5N5T5	

* Used in some models

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES	
		RESIST-ANCE	WATTS	TELEQUIP PART No.	MALLORY PART No.		CLAROSTAT PART No.
15A	2 Meg		1		MR55	D13-139	Volume Control
B	Shaft				Not Req.	M-86-Z	Attach to 15A Per Instr.
C	Switch				M28	41	" " "
16A	100K Ω		1		MR41	D11-128	Tone Control
B	Shaft				Not Req.	M-49-S	Attach to 16A Per Instr.
16A	50K Ω		1		MR35	D11-123	Tone Control
B	Shaft				Not Req.	M-44-S	See Note 1.
16A	200K Ω		1		MR41	D11-129	Attach to 16A Per Instr.
B	Shaft				Not Req.	M-52-S	See Note 2.
						A	Attach to 16A Per Instr.

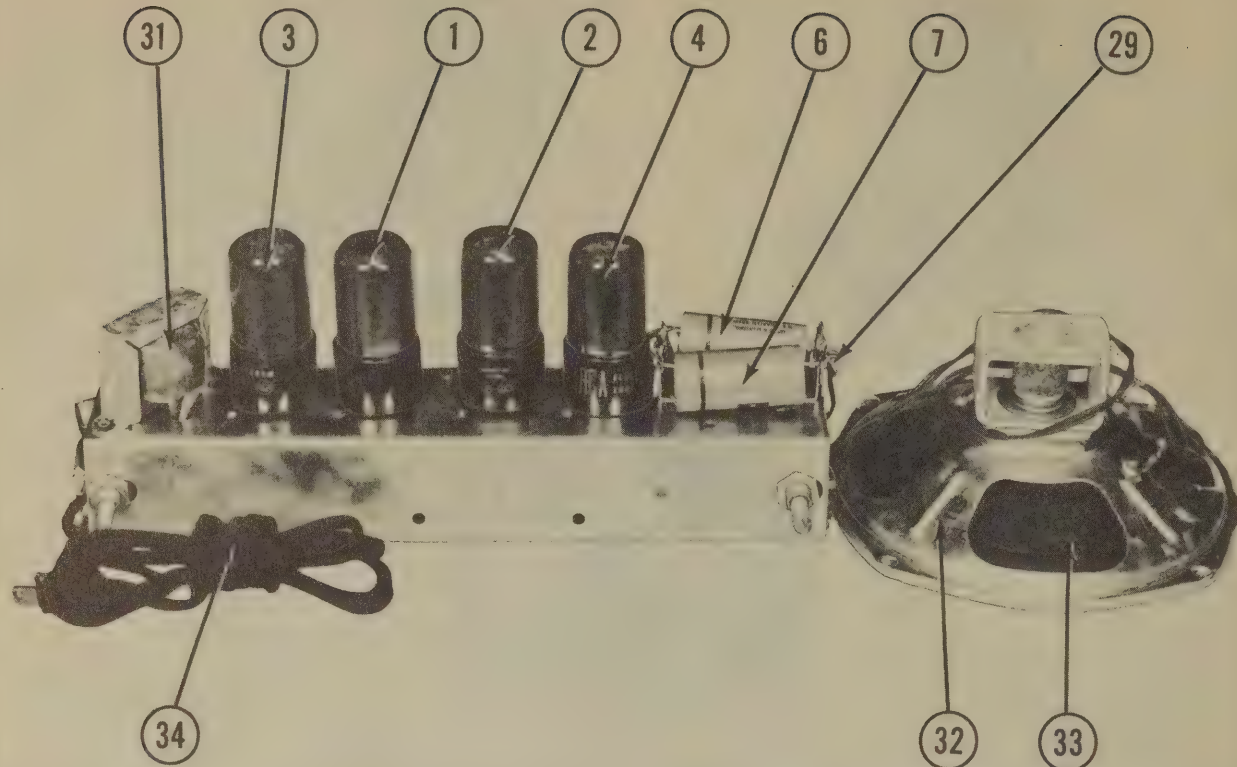
NOTE 1: Some models use 50K Ω tone control in place of 100K Ω tone control.

NOTE 2: Some models use 200K Ω tone control in place of 100K Ω tone control.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		RESISTANCE	WATTS	TELEQUIP PART No.	
17	100K Ω		1	PTS-100K	Br - Blk - Y1
18	470K Ω		1	PTS-470	Y1 - V1 - Br
19	220K Ω		1	PTS-220K	AF Cathode
20	40K Ω		1	PTS-40K	Red - Red - Y1
21	47K Ω		1	PTS-47K	Y1 - Blk - Or
					Blk - Inverter Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	TELEQUIP PART No.	IRC PART No.	Y1 - V1 - Red	Phase Inverter Cathode Bias *
22A	4700Ω	1/2	BTS-4700		Grn - Blk - Or	Phase Inverter Cathode
22B	5600Ω	1/2	BTS-5600		Y1 - V1 - Or	Phase Inverter Plate Load
23	47KΩ	1/2	BTS-47K		Grn - Blk - Y1	Output Grid
24	47KΩ	1/2	BTS-47K		Grn - Blk - Y1	Output Cathode
25	500KΩ	1/2	BTS-470K		Red - Grn - Red	Filter
26	500KΩ	1/2	BTS-470K		Y1 - V1 - Br	Line Dropping - See Note 1
27	470Ω	1/2	BTS-470		Y1 - V1 - Br	Line Dropping - See Note 2
28	2500Ω	1	BTS-2500			
29	470Ω	1	BTS-470			
30A	220Ω	10	45A-250			
30B	75Ω	20	DG-75			

* Used in model 5136
† Used in model 5135
Note 1: On IRC replacement, set slider 220Ω from one end. Used in Models 5135, 5136.
Note 2: Model 5140A uses two 150Ω 10 watt resistors paralleled and a 220Ω line cord resistor.

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	TELEQUIP PART No.	THORDARN PART No.	
31	2200Ω 3.7Ω	180Ω CT	5-120-733	T22874#	# Drill one new mounting hole

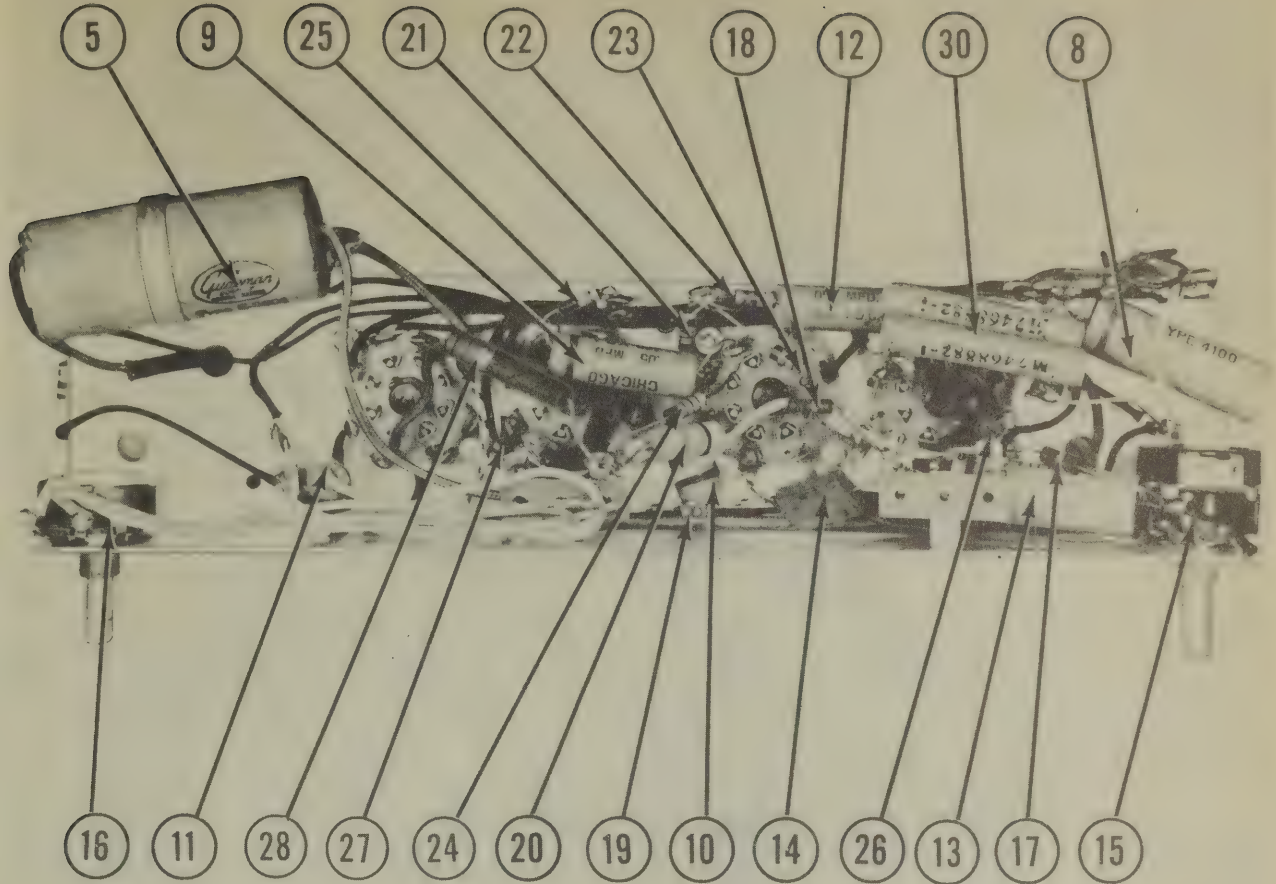
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	V.C.I.M.P.	TELEQUIP PART No.	JENSEN PART No.	
32A	FIELD	3.7Ω		ST-107	Used in Models 5135, 5136
33A	CONE DIA.	V.C.DIA.		MOD. P5-V	
32B	FIELD	1/2"	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT		
33B	CONE DIA.	V.C.DIA.		MOD. P3-X	Used in Model 5140A
33C	8"	7/16"	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT		

DISASSEMBLY INSTRUCTIONS

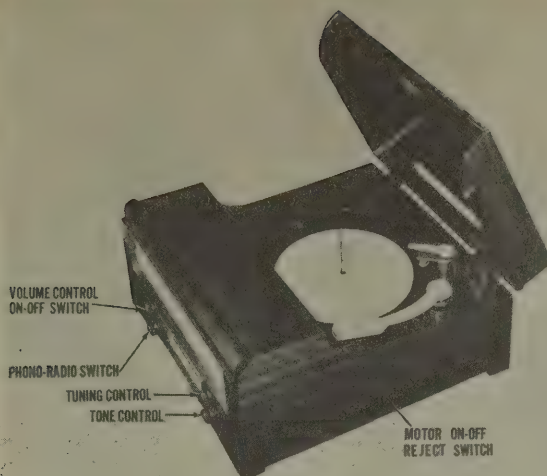
1. Remove the set-screw type control knobs.
2. Remove two hex-head lock nuts from the control shafts.
3. On models 5135 and 5140A, remove five screws holding motor board to cabinet and turn motor board over to gain access to interior of cabinet.
4. Unsolder phono pick-up leads.
5. Unsolder phono motor leads.
6. Remove line cord from cabinet.
7. Remove speaker fasteners.
8. Remove entire assembly from cabinet.

CHASSIS—BOTTOM VIEW





THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE



TELETONE MODEL 133

TELETONE
MODEL 133

TRADE NAME	Teletone Model 133
MANUFACTURER	Teletone Radio Co., 609 W. 51st, New York, N.Y.
TYPE SET	AC Operated Combination Auto. Phono.-Superheterodyne Receiver with Self-Contained Loop Antenna
TUBES (EIGHT)	Types, 6SA7 Converter, 6SK7 IF Amp., 6SQ7GT Det.-AVC, 6SJ7GT 1st AF Amp., 6SJ7GT Phase Inverter, (2) 6K6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	117 Volts AC
TUNING RANGE—BROADCAST	530-1700KC
RATING	.370 amps. @ 117 V AC

ALIGNMENT INSTRUCTIONS

To set pointer turn variable fully closed and set pointer to last index mark at left end of dial. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjustments.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to sta- tor of rear sec- tion of variable Low side to chassis.	455KC	Variable fully open	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMFD	High side to ext ant. lead. Low side to ext. ground lead.	1500KC	"	"	A5	" " " "
200 MMFD	"	1500KC	Tune to maxi- mum output.	"	A6	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove four control knobs from front panel.
2. Remove two screws holding small panel. Remove panel.
3. Remove six screws holding phono turntable mounting board.
4. Remove phono-pickup plug from chassis.
5. Disconnect phono motor plug.
6. Lift out turntable.
7. Remove three hex bolts holding chassis.
8. Slide chassis out and lift up.

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TELEPHONE PART No.	STANDARD REPLACEMENT		
1	Converter	6SA7	6SA7	8R	
2	1st AF Amp.	6SK7	6SK7	8N	
3	Det.-AVC	6SQ7GT	6SQ7GT	8Q	
4	1st AF Amp.	6S7GT	6S7GT	8N	
5	Phase Inverter	6S7GT	6S7GT	8N	
6	Power Output	6KGT	6KGT	7S	
7	Power Output	6KGT	6KGT	7S	
8	Rectifier	6XGT	6XGT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TELEPHONE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
9A	15 300		DY-3X15-450S	EL-253		Filter - Brown
B	15 300					" - Yellow
C	15 300					" - Red White
10	.05 400	S-4-05		EL-203	484-05	Line Filter
11	.05 400	S-4-05		TC-15	484-05	"
12	.02 400	S-4-02		TC-12	484-02	Audio Coupling
13	.02 400	S-4-02		TC-12	484-02	"
14	.1 200	S-4-1		TC-1	484-1	Audio Screen Bypass
15	.1 200	S-4-1		TC-1	484-1	6SJ7 Screen Bypass
16	.002 600	S-6-002		TC-22	684-002	Audio Coupling
17	.05 400	S-4-05		TC-15	484-05	Screen Bypass
18	.05 400	S-4-05		TC-15	484-05	AVC Filter
19	.1 200	S-4-1		TC-1	484-1	Tone Compensation
20	150 500	MO-5-315		1FM-315	1468-00015	IF Bypass Diode
21	150 500	MO-5-315		1FM-315	1468-00015	IF Bypass Vol. Cont.

†Do not use bypass section.
‡Use mounting clip.

CONTROLS

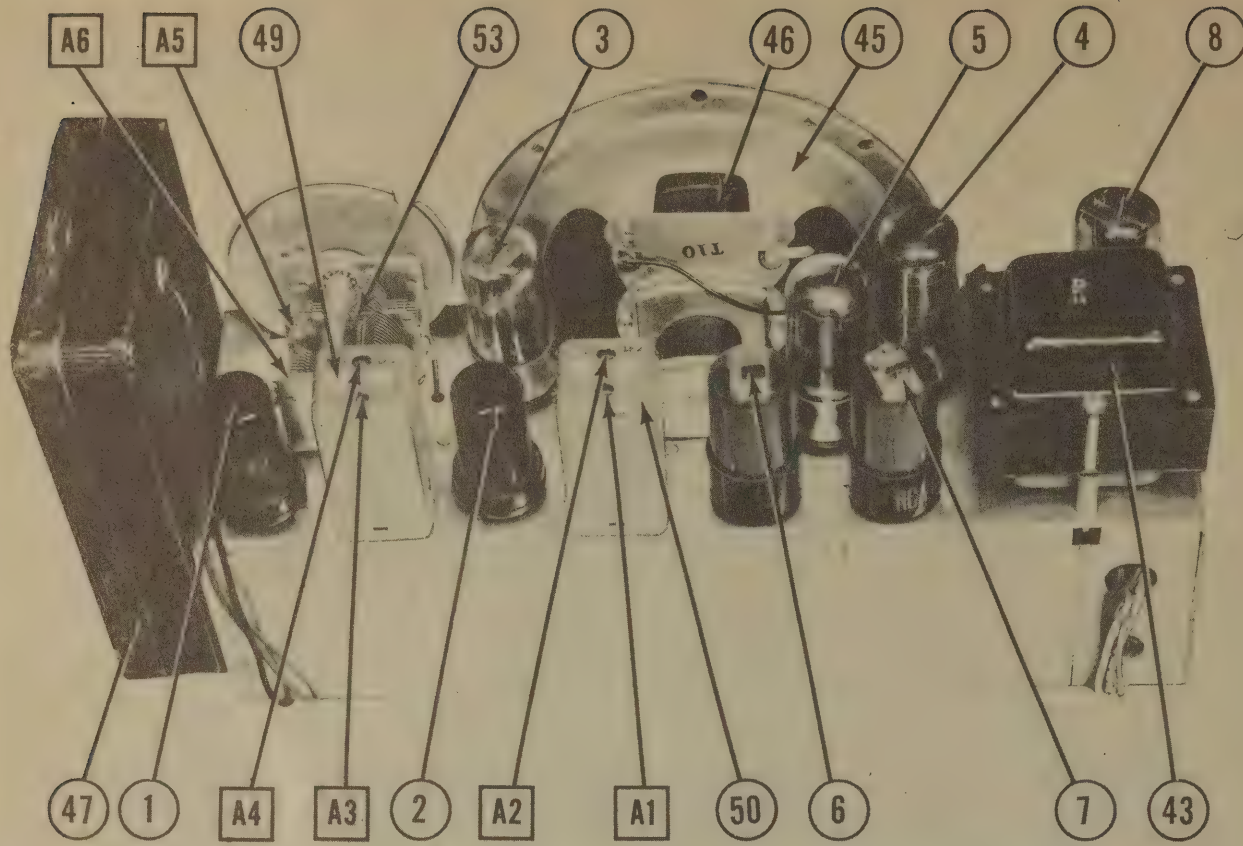
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TELEPHONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22A	500KΩ Shaft	A-VC-1	MR49#	D13-133#	M-60-Z#	Volume Control
B	Switch	"	"	"	"	Attach to 23A per Instructions
23A	20KΩ Shaft	C-VC-1	MR28	D16-119	SW-A	Tone Control
B	Shaft	"	"	"	"	Attach to 23A per Instructions

†Install a 47KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft side, terminals down.)

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		TELEPHONE PART No.	IRC PART No.	
24	22KΩ		BTS-22K	Red-Red-Yr. Oscillator Grid
25	10KΩ		BTS-2-10K	Br.-Blk.-Or. Screen Dropping
26	2.2 Meg.		BTS-2.2 Meg	Red-Red-Grn. AVC Network
27	330KΩ		BTS-330K	Or.-Or.-Yl. Phono Shunt
28	10 Meg.		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
29	180Ω		EW-2-180	Br.-Gray-Br. 1st AF Cathode
30	220KΩ		BTS-220K	Red-Red-Yl. 1st AF Plate Load
31	1.5 Meg.		BTS-1.5 Meg	Br.-Grn.-Grn. 1st AF Screen Dropping
32	100KΩ		BTS-100K	Br.-Blk.-Yl. Phase Inverter Grid
33	100Ω		BTS-100Ω	Br.-Blk.-Red Cathode
34	220KΩ		BTS-220K	Red-Red-Yl. Phase Inverter Plate Load
35	1.5 Meg.		BTS-1.5 Meg	Br.-Grn.-Grn. Phase Inverter Screen Dropping
36	330KΩ		BTS-330K	Or.-Or.-Yl. Output Grid
37	330KΩ		BTS-330K	Or.-Or.-Yl.
38	100Ω		ETA-100Ω	Br.-Blk.-Red Output Cathode
39	390Ω		EW-2-390	Or.-White-Br. Filter
40	220Ω		BT-2-220Ω	Red-Red-Red
41	150Ω		BTS-150Ω	Br.-Grn.-Red Tone Compensation
42	47KΩ		VI.-V1.-Or.	Series Volume Control-See Note 1

Note 1 - Not used in all models.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA	
	PRI.	SEC. 1	SEC. 2	TELEPHONE PART No.	STANCOR PART No.
43	117V-C ② .37A ③ .046A ④ 3.1A	500V-0 ② 3.7V-C		C-TR2	T22K01

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		TELEPHONE PART No.	THORDARN PART No.	
44	1600Ω 3-4Ω CT	500Ω .4Ω CT		C-RT1	T22C48	† Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC I.M.P.		TELEPHONE PART No.	JENSEN PART No.	
45	14-104Ω	3-4Ω		C-SP1	ST-108* Mod. PG-X	*Drill new mounting holes.
46	6-1/8"	1/2"		CONE HAS SPECIAL ADJUSTMENT FEATURE - ORDER FROM MANUFACTURER.		

R F COILS

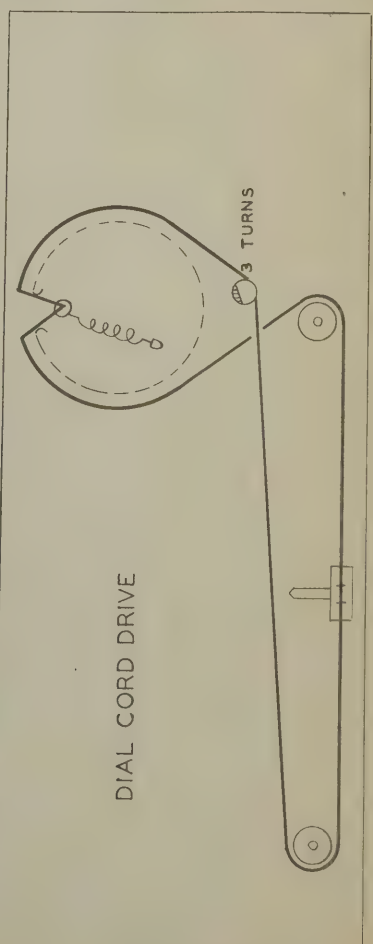
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TELEPHONE PART No.	MEISSNER PART No.	
47	Loop Ant.	.2Ω	3Ω			
48	Osc. Coil	.5Ω	6Ω	A-LC-1	14-104Ω	
49	Input IF	21Ω	21Ω	C-LF-1	16-6658	
50	Output IF	16.5Ω	16.5Ω	C-LF-2	16-6660	

DIAL LIGHT

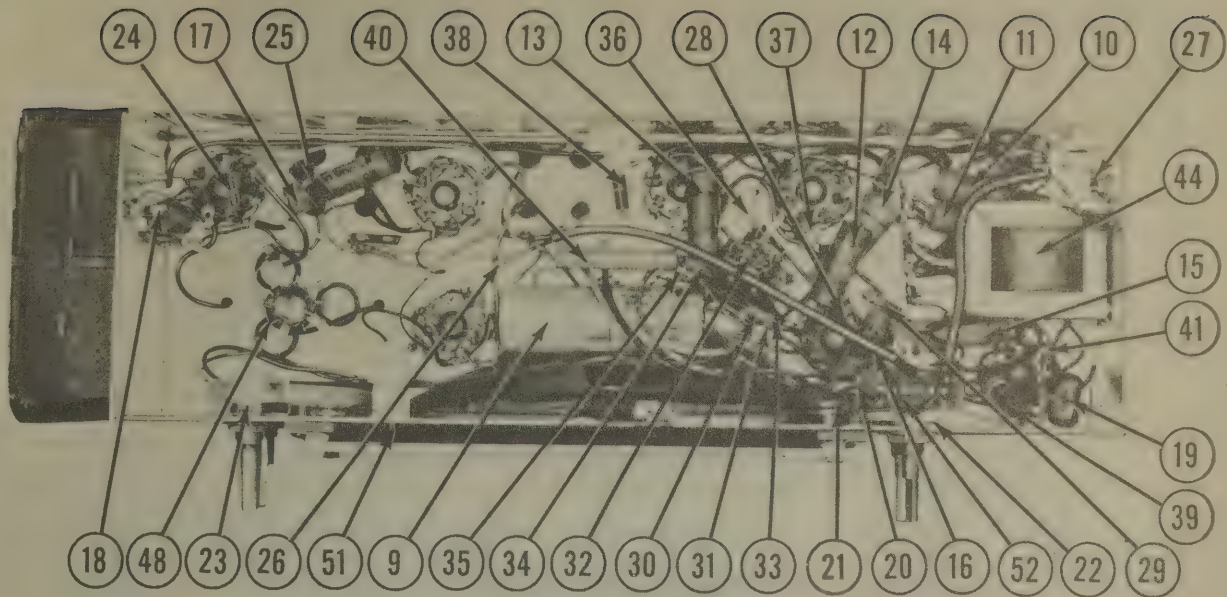
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	TELEPHONE PART No.	
51	Bayonet	6-8	0.15	Brown		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	TELEPHONE PART No.	NOTES
52	Switch		Radio-Phono
53	Tuning Cap.		2 Gang Var. Cap.



CHASSIS—BOTTOM VIEW



TEMPLE
MODEL E-511



TEMPLE MODEL E-511

TEMPLE
MODEL E-511

TRADE NAME	Temple, Model E-511		
MANUFACTURER	Templetone Radio Mfg. Corp., New London, Conn.		
TYPE SET	AC Operated Radio - Phonograph Combination Superheterodyne Receiver - Self Contained Loop Antenna		
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7 IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.		
POWER SUPPLY	110-120 Volts AC		
TUNING RANGE—BROADCAST	540-1600KC	RATING	.235 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS

To set pointer, turn variable fully closed and set pointer to last mark on right of dial backplate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjustments.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD.	High side to stat- tor of rear sec- tion of variable. Low side to chassis.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
	Loop	1650KC	"	"	A5	Using a loop of few turns of wire, placed about a foot away from receiver loop, radiate signal into receiver loop and adjust for maximum output.
"		1550KC	Tune for maxi- mum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		TEMPLE PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Converter	12SA7GT	12SA7GT	6AD	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		TEMPLE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNEILL-DUBUIER PART No.	
6A	80 CAP.	CE78	DSB-804020-150	TA-4401 TA-240		EZ53215C1 2N5111 2N5114	Filter - Red
7	150		S-4-1	TC-1	484-1	TP428	Cath. Bypass - Green
8	40	164.003	S-6-02	TC-12	684-02	TP412	Line Filter
9	.005	164.009	S-6-005	TC-25	684-005	TP408	Output Plate Bypass
10	.005	164.009	S-6-005	TC-25	684-005	TP408	Audio Coupling
11	.1		S-4-1	TC-1	484-1	TP428	"
12	.005	164.009	S-6-005	TC-25	684-005	TP428	AVC Filter
13	.1		S-4-1	TC-1	484-1	TP428	Ant. Coupling
14	.05	164.004	S-4-05	TC-15	684-005	TP428	RF Bypass Pwr. Supp.
15	.005	164.009	S-6-005	TC-25	684-005	TP408	IF Cath. Bypass
16	100	162.522	M0.5-31	1FM-31	1488-0001	MC235	Tone Compensation
17	500	162.522	M0.5-31	1FM-31	1488-0001	MC235	Audio Plate Bypass
18	500	162.580	M0.5-41	1FM-41	1488-0001	MC215	Osc. Grid Capacitor
							Fixed Trimmer

† Parallel sections to obtain desired capacity.

CONTROLS

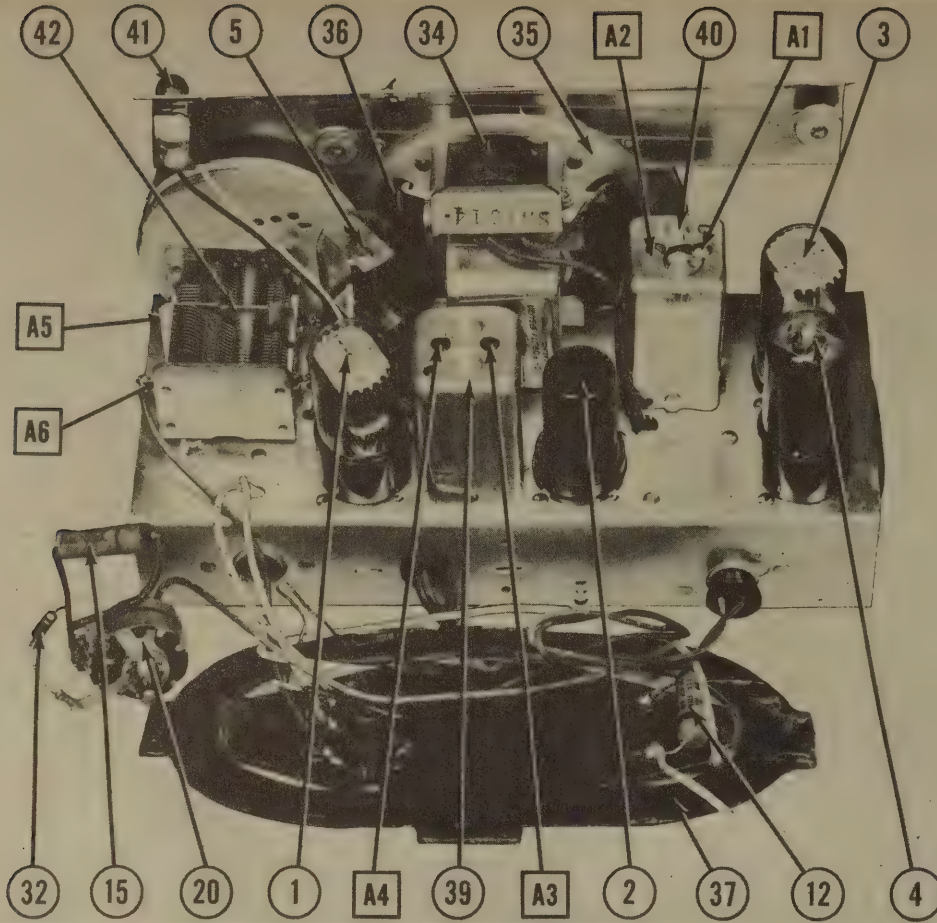
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TEMPLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
19A	500KΩ 1	650.504E	MK401	D13-133	AM-60-Z	Volume Control
B	Shift	Not Req.	Not Req.	E 41	KSS-3	Attach to 19A per instructions.
20A	500KΩ 1	650.504J	MK48	D13-133	M-60-Z	"
B	Shift	Not Req.	Not Req.	A 41	Not Req.	Tone Control
C	Switch				SW-A	Attach to 20A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		TEMPLE PART No.	IRC PART No.	TEMPLE PART No.	
21	22KΩ	605.2231	BTS-22K		Red-Red-Or. Oscillator Grid
22	6.8 Meg.	605.6851	BTS-6.8 Meg.		Blue-Gray-Grm. AVC Network-See Note 1
23	2.2 Meg.	605.2251	BTS-2.2 Meg.		Red-Red-Grm. AVC Network
24	4.7 Meg.		BTS-4.7 Meg.		Y1-V1.-Grn. 1st AF Grid-See Note 2
25	220KΩ	605.2241	BTS-220KΩ		Red-Red-Y1. 1st AF Plate Load
26	470KΩ	605.4741	BTS-470KΩ		Y1-V1.-Y1. Output Grid
27	47Ω		BW-1-47		Y1-V1.-Blk. Output Cathode
28	100Ω		BW-1-100		Br.-Blk.-Br. Output Cathode
29	1000Ω	601.1021	EW-1-1000		Br.-Blk.-Red Filter
30	120Ω	601.1211	EW-1-120		Br.-Red-Br. " See Note 1
31	100Ω		EW-1-100		Br.-Blk.-Br. Rectifier Ballast
32	22KΩ	605.2231	BTS-22K		Red-Red-Or. Phone Audio Voltage Divider
33	150KΩ		BTS-150K		Br.-Grn.-Y1. Diode Load

Note 1 - Not used in all models.

Note 2 - Some models use a 10 Meg. Ω resistor in this application.



PARTS LIST AND DESCRIPTIONS (Continued) TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	TEMPLE PART No.	THORDARN PART No.	
34	186Ω 3.29Ω 153Ω	PRI. SEC. .58Ω	851.514	A-3876* T14582	*One new mounting hole required.

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		TEMPLE PART No.	JENSEN PART No.	
35	FIELD VC IMP. 3.29Ω	780.008	ST-106 Mod. P5-W	
36	COIL DIA. 1/2"	NOT READILY REPLACEABLE	USE COMPLETE SPEAKER UNIT.	

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TEMPLE PART No.	MEISSNER PART No.	
37	Loop Ant.	.1Ω	2Ω	251.145	14.1040	
38	Osc. Coil	7Ω	7Ω	251.143	16-6658	
39	Input IF	15.5Ω	15.5Ω	251.146	16-6670	
40	Output IF	14.5Ω		251.147		

DIAL LIGHT

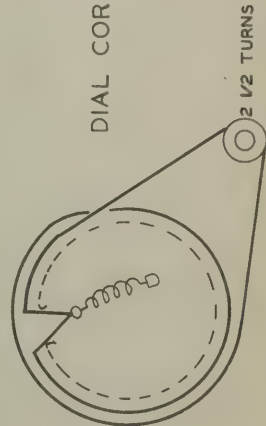
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	TEMPLE PART No.	
41	Bayonet	6-8	0.2	White		Type 51

MISCELLANEOUS

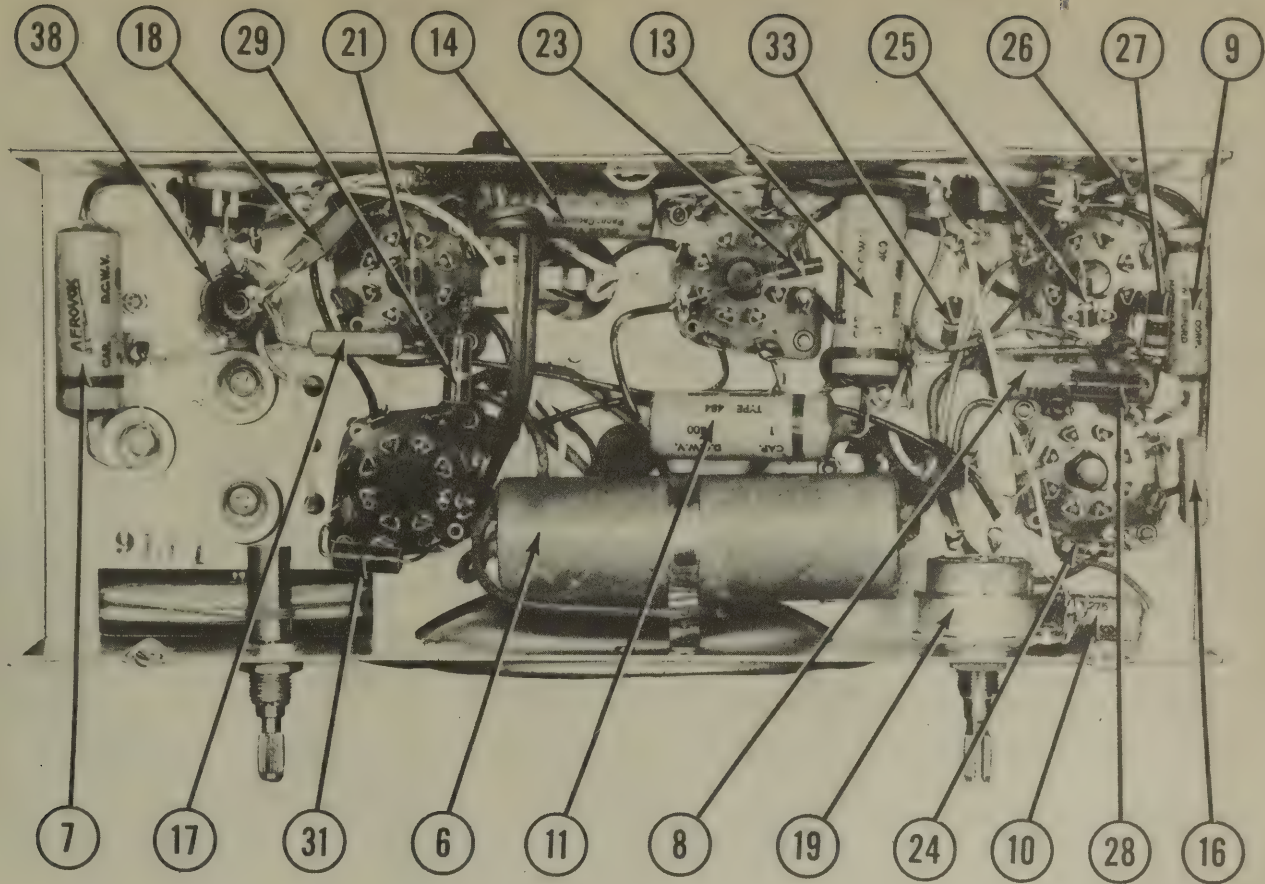
ITEM No.	PART NAME	TEMPLE PART No.	NOTES
42	Radio-Phono SW.	801.507	
43	2 Gang Var. Cap	166.513	DPDT Ant. & Osc. Trimmers Incl.
	Crystal Cart.	EM-6	
	Dial Scale	ND-11	
	Pointer	591.005	

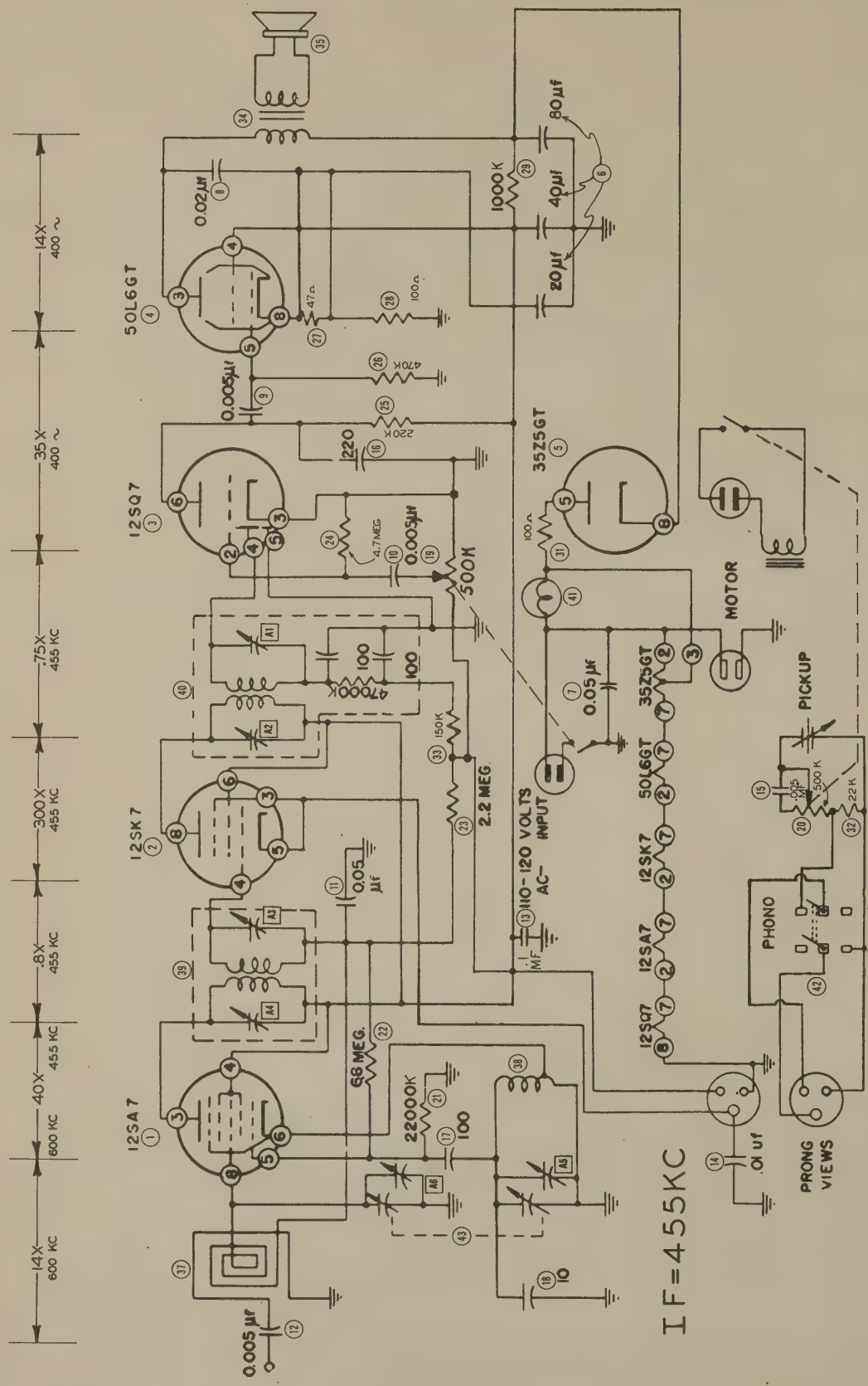
DISASSEMBLY INSTRUCTIONS

1. Remove seven Phillips head screws holding top panel. Lift up panel.
2. Remove set screw on tone control, motor on-off switch knob. Remove knob.
3. Remove lock nut on tone control motor on-off switch control. Remove control.
4. Remove plug to phono switch from chassis.
5. Remove plug to phono motor switch from chassis.
6. Remove two knobs from controls at front of radio.
7. Remove three screws holding chassis.
8. Remove chassis and loop.



CHASSIS—BOTTOM VIEW





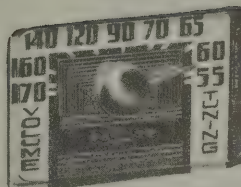
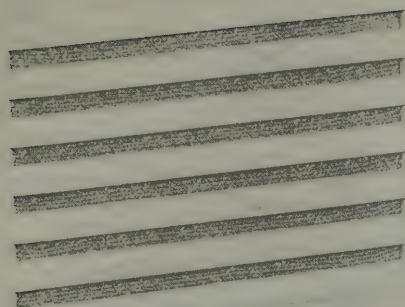
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0Ω	12Ω	35KΩ	20KΩ	5Ω	23Ω	34Ω	2.5MEG
2	12SK7	0Ω	23Ω	2.5MEG	2.5MEG	0Ω	35KΩ	0Ω	35KΩ
3	12SQ7GT	0Ω	4MEG	0Ω	650KΩ	0Ω	250KΩ	12Ω	12Ω
4	50L6GT	95Ω	34Ω	35KΩ	35Ω	420KΩ	INF	76Ω	135Ω
5	35Z5GT	0Ω	100Ω	98Ω	INF	190Ω	INF	76Ω	35KΩ

VOLTAGE READINGS									
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V	11 V AC	80V DC	80V DC	-6.2 V DC	0V	24V AC	+2V DC
2	12SK7	0V	24 V AC	-2 V DC	37V AC	80V DC	80V DC	80V DC	80V DC
3	12SQ7GT	0V	-1 M DC	0V	-5V DC	65V DC	0V	11V AC	0V
4	50L6GT	3.9V DC	37 V AC	100V DC	80V DC	0V	90V AC	5.5V DC	0V
5	35Z5GT	0V	117 V AC	115V AC	0V	108V AC	0V	90V AC	105V DC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS 471-26

- The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
 2. Socket connections are shown as bottom views.
 3. Measured values are from socket pin to common negative.
 4. Line voltage maintained at 117 volts for voltage readings.
 5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
 6. Volume control at maximum, no signal applied for voltage measurements.

VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

TRAV-LER MODEL 5000I

TRADE NAME	Trav-ler Models 5000, 5000I
MANUFACTURER	Trav-ler Karenola Radio & Tel. Corp., 571 W. Jackson, Chicago, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier or Types 12BE6, 12BA6, 12AT6, 50B5, 35W4 Respectively.
POWER SUPPLY	110-125 Volts AC-DC
RATING	.235 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1720KC

ALIGNMENT INSTRUCTIONS

To set pointer, turn variable fully closed and set pointer at last reference mark at low frequency end of dial. Use isolation transformer if available, if not connect capacitor in series with low side of signal generator and B-. Volume control should be at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	High frequency end.	Across voice coil.	A1,A2, A3,A4	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 to reduce hum modulation.
.1 MFD.	"	1720KC	"	"	A5	"
200 MMFD	High side to external ant. lead. Low side to B-.	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRAV-LER PART No.	STANDARD REPLACEMENT		
1A	Converter	12SA7GT	12SA7GT	8AD	
2A	IF Amp.	12BE6	12BE6	7CH	
3A	IF Amp.	12SK7GT	12SK7GT	8W	
4A	Det.-AVC-IF	12BA6	12BA6	7CC	
5A	Det.-AVC-IF	12SQ7GT	12SQ7GT	8Q	
6A	Power Output	12A76	12A76	7BT	
7A	Power Output	5JL6JT	5JL6JT	7AC	
8A	Rectifier	50B5	50B5	7B4	
9A	Rectifier	35Z5JT	35Z5JT	6AD	
10A	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TRAV-LER PART No.	SOLAR PART No.	SPRAGUE PART No.	CORNELL-DUBILIER PART No.	
1	40 150	EC-3	M-2X40-150	TA-240	BRD4215	Filter-Red
2	20 150	PC-5	S-4-05	TC-15	DT4S5	" White
3	7 .05	PC-7	S-4-01	TC-11	DT4S1	Line Filter
4	8 .01	PC-7	S-4-01	TC-11	DT4S1	Output Plate Bypass
5	10 .01	PC-7	S-4-01	TC-11	DT4S1	Audio Coupling
6	10 .01	PC-7	S-4-01	TC-11	DT4S1	"
7	11 .05	PC-5	S-4-05	TC-15	DT4S5	AVC Filter
8	12 .1	PC-9	S-4-1	TC-1	DT4P1	Line Isolation
9	13 .01	PC-7	S-4-01	TC-11	DT4S1	Ant. Coupling
10	14 500	MC-5	MO-5-35	LFN1-45	5W575	Audio Plate Bypass
11	15 100					IF Bypass Diode Cer.
12	16 39					Osc. Grid Capacitor Cer.

CONTROLS

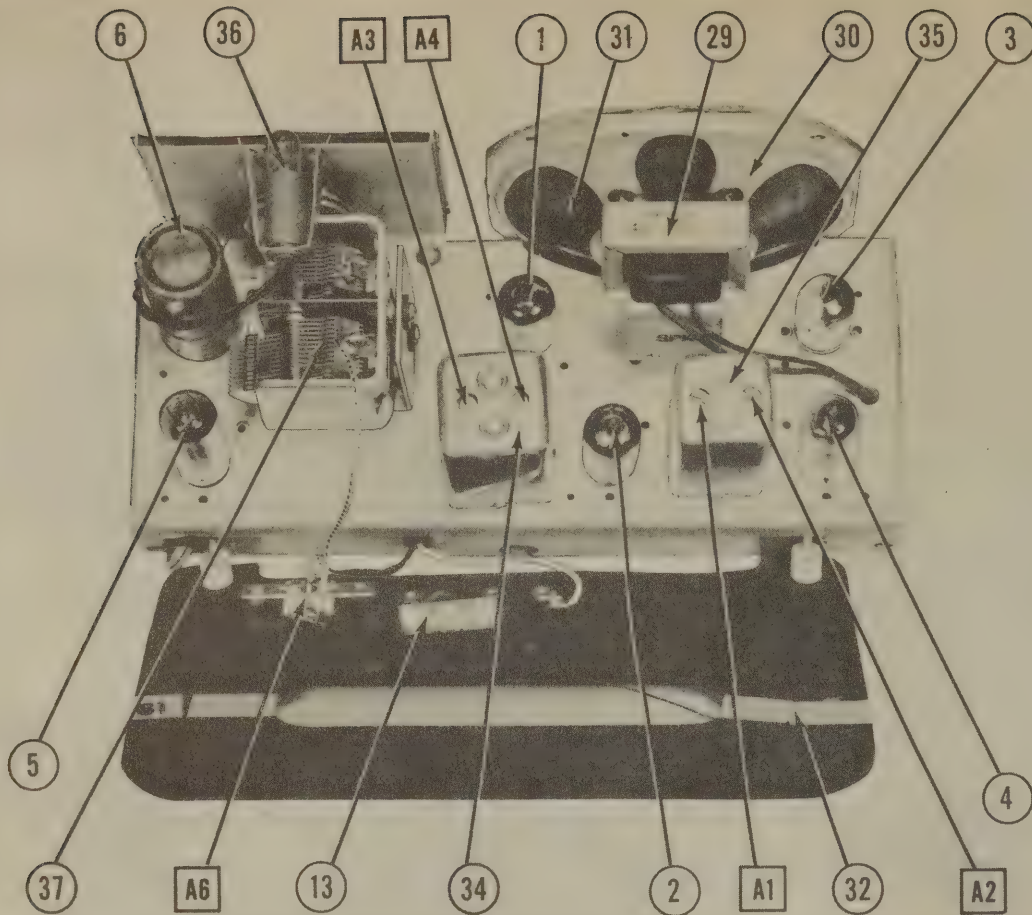
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TRAV-LER PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	500KΩ	MR48	MR48	D13-133	M-60-Z	Volume Control. See Note 1
18A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
19A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
20A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
21A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
22A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
23A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
24A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
25A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
26A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
27A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
28A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
29A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
30A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
31A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
32A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
33A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
34A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
35A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
36A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
37A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
38A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
39A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
40A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
41A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
42A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
43A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
44A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
45A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
46A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
47A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
48A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
49A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
50A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
51A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
52A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
53A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
54A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
55A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
56A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
57A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
58A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
59A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
60A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
61A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
62A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
63A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
64A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
65A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
66A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
67A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
68A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
69A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
70A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
71A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
72A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
73A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
74A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
75A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
76A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
77A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
78A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
79A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
80A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
81A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
82A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
83A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
84A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
85A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
86A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
87A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
88A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
89A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
90A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
91A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
92A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
93A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
94A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
95A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
96A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
97A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
98A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
99A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2
100A	1 Meg.	MR26	MR26	D13-137	M-63-Z	Volume Control. See Note 2

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		TRAV-LER PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
1	33KΩ	IR-16	BTS-33K	BTS-33K	M-60-Z	Or.-Or.-Or. Oscillator Grid
2	2 Meg.	IR-13	BTS-2.2 Meg.	BTS-2.2 Meg.	M-60-Z	Red-Blk.-Grn. AVC Network
3	2 Meg.	IR-13	BTS-2.2 Meg.	BTS-2.2 Meg.	M-60-Z	Red-Blk.-Grn. 1st Af Grid
4	510KΩ	IR-13	BTS-470K	BTS-470K	M-60-Z	Grn.-Br.-Yl. Plate Load
5	510KΩ	IR-13	BTS-470K	BTS-470K	M-60-Z	Grn.-Br.-Yl. Output Grid
6	150Ω	IR-15	BW-2-150	BW-2-150	M-60-Z	Br.-6rm.-Br. Cathode
7	250Ω	IR-15	BW-2-150	BW-2-150	M-60-Z	Or.-White-Blk. Rectifier Cathode
8	100Ω	IR-15	BW-2-150	BW-2-150	M-60-Z	Br.-Cray-Red Filter
9	39Ω	IR-15	BW-2-150	BW-2-150	M-60-Z	Or.-White-Blk. Parasitic Suppressor
10	39Ω	IR-15	BW-2-150	BW-2-150	M-60-Z	Br.-Blk.-Br. IF Cathode
11	100Ω	IR-15	BW-2-150	BW-2-150	M-60-Z	Yl.-Vl.-Or. RF Filter
12	47KΩ	IR-15	BW-2-150	BW-2-150	M-60-Z	Yl.-Vl.-Or. RF Filter

used only on models using 500KΩ volume control.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	DC RES.	DC RES.	TRAV-LER PART No.	THORDARN PART No.	
29	2.8Ω	1.8Ω	1.8Ω	1.8Ω	A-3376*	T-22545*	* Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		TRAV-LER PART No.	JENSEN PART No.	
30	FIELD V.C. MP. 2.5Ω	SPK-4	ST-105 .004.15-A	
31	4" x 7" 16" 1.2"	NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT.		

R F COILS

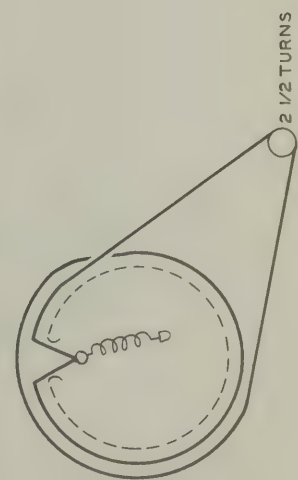
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRAV-LER PART No.	MEISSNER PART No.	
32	Loop Ant.	1.5Ω	7.5Ω	LL-1		
33	usc. Coil	1.5Ω	7.5Ω	LL-2		
34	Input IF	1.5Ω	7.5Ω	LL-1		
35	Output IF	1.5Ω	7.5Ω	LL-2		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	TRAV-LER PART No.	
36	Bayonet	6-8	0.15	green	PB-1	Type 47

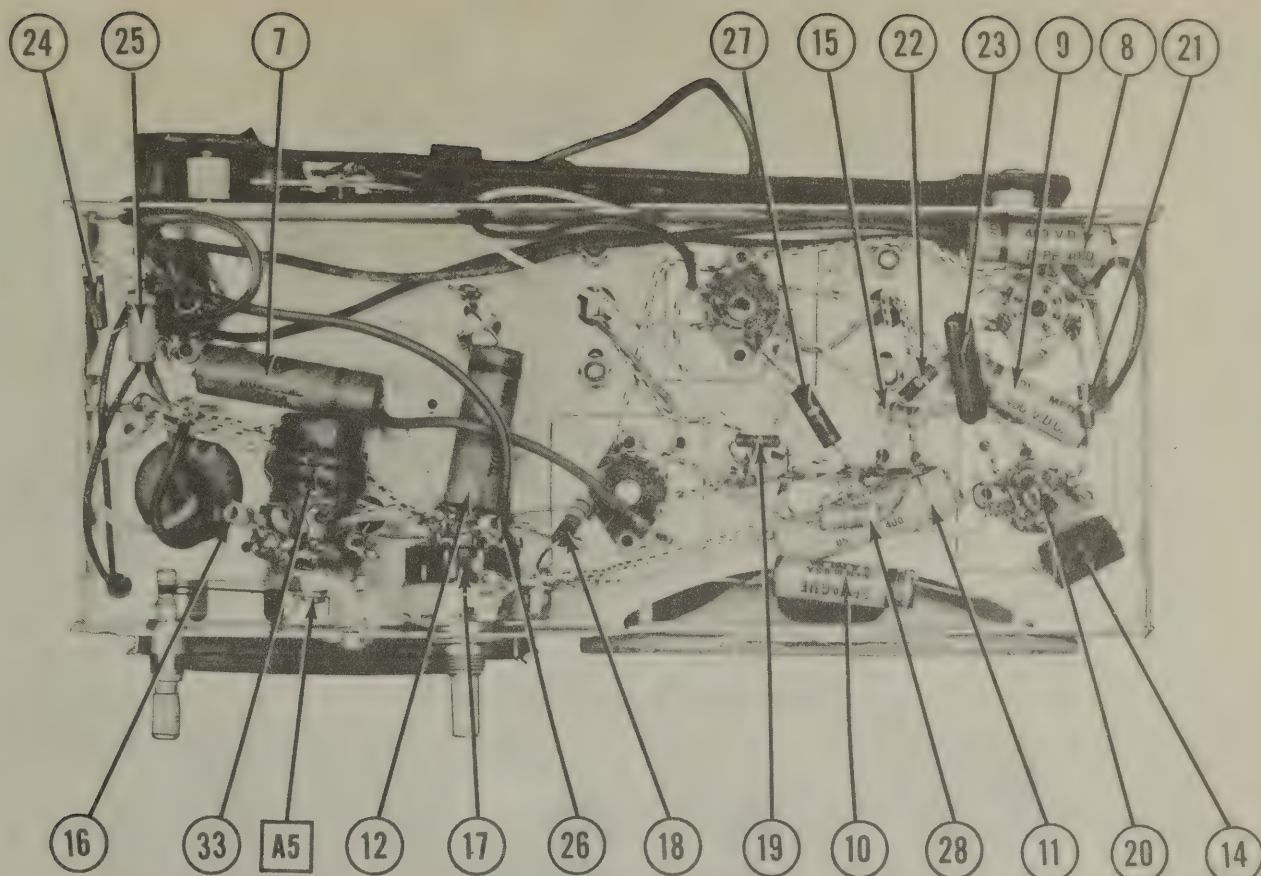
MISCELLANEOUS

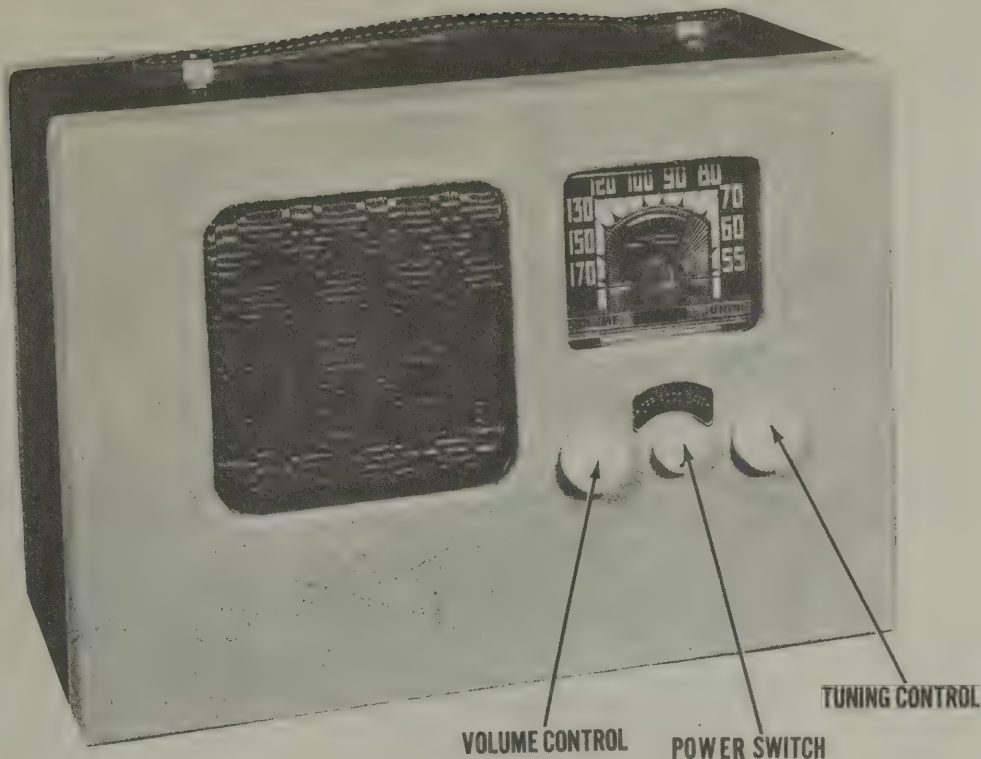
ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
37	2 Gang Var. Cap	GC-2	
45	Trimmer	TC-6	Osc. Adjustment
46	"	TC-7	"



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





TRAV-LER MODEL 5020

TRADE NAME	Trav-ler, Model 5020 (Ch. 800)
MANUFACTURER	Trav-ler Karenola Radio & Tel. Corp., 571 W. Jackson Blvd., Chicago, Ill.
TYPE SET	3 Power Portable AC-DC-Battery Superheterodyne - Self Contained Loop Antenna
TUBES (FOUR)	Types, 1LC6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 3Q5GT Power Output
POWER SUPPLY	110-125 Volts AC-DC or 2 - 4½ V "A" Batteries & 2 - 45 V "B" Batteries (See Schematic for replacement battery chart)
RATING	.170 Amps. @ 117V AC or 14MA @ 9V DC and 51 MA @ 94V DC
TUNING RANGE-BROADCAST	540-1720KC

ALIGNMENT INSTRUCTIONS

To set pointer, turn variable fully closed and set pointer at the last reference mark at the low frequency end of the dial. Use battery power for alignment if available. If a-c power is used, use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and chassis. Set volume control at maximum volume and keep input from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screw-driver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to chassis.	455KC	High freq. end.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If ac power is used without an isolation transformer, reduce dummy ant. to 200 MMF. to reduce hum modulation.
.1 MFD.	"	1720KC	"	"	A5	"
200 MMF	High side to ext. ant. lead. Low side to ext. gnd. lead.	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRAV-LER PART No.	STANDARD REPLACEMENT		
1	Converter	1126	1126	7AK	
2	IF Amp.	11N5	11N5	7AO	
3	Det.-AVC-AF	1LH4	1LH4	5AG	
4	Power Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		TRAV-LER PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
5A	CAP. 40	EC-10	DSB-2X40-150	TA-440	PRS150-40-40	Filter - Red
5B	40					" - Red
6	20					Filter
7	10	EC-6	M-20-150	UT-201	PRS150-20	Filament Bypass
8	.05	PC-5	S-4-05	UHC-112	PRS25-100	Rect. Bypass
9	.05	PC-5	S-4-05	TC-15	484-05	Audio Plate Decoupling
10	.006	PC-5	S-6-006	TC-26	884-006	Audio Coupling
11	.1	PC-8	S-4-01	TC-1	484-01	IF Fil. Bypass
12	.05	PC-5	S-4-05	TC-15	484-05	AVC Filter
13	.01	PC-7	S-4-01	TC-11	484-01	OSC. Anode Bypass
14	.05	PC-5	S-4-05	TC-15	484-05	Conv. Screen Bypass
15	5000	PC-6	MW-5-25	1FM-25	1467-005	Output Plate Bypass
16	5000	PC-6	MW-5-25	1FM-25	1467-005	Audio Coupling
17	100	MC-2	MO-5-31	1FM-31	1468-0001	MC235
18	100	MC-2	MO-5-31	1FM-31	1468-0001	IF Bypass Diode
19	100	MC-2	MO-5-31	1FM-31	1468-0001	OSC. Grid Capacitor

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TRAV-LER PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
20A	1 Meg. A		MR53	D13-137	M-63-Z	Volume Control - See Note 1
20B	1 Meg. B		MR48	D13-133	M-60-Z	Volume Control - See Note 2
20C	1 Meg. C		Not Req.			Volume Control - See Note 2
20D	1 Meg. D		Not Req.			Volume Control - See Note 2

Note 1 - Used in later production.
Note 2 - Used in early production.

RESISTORS

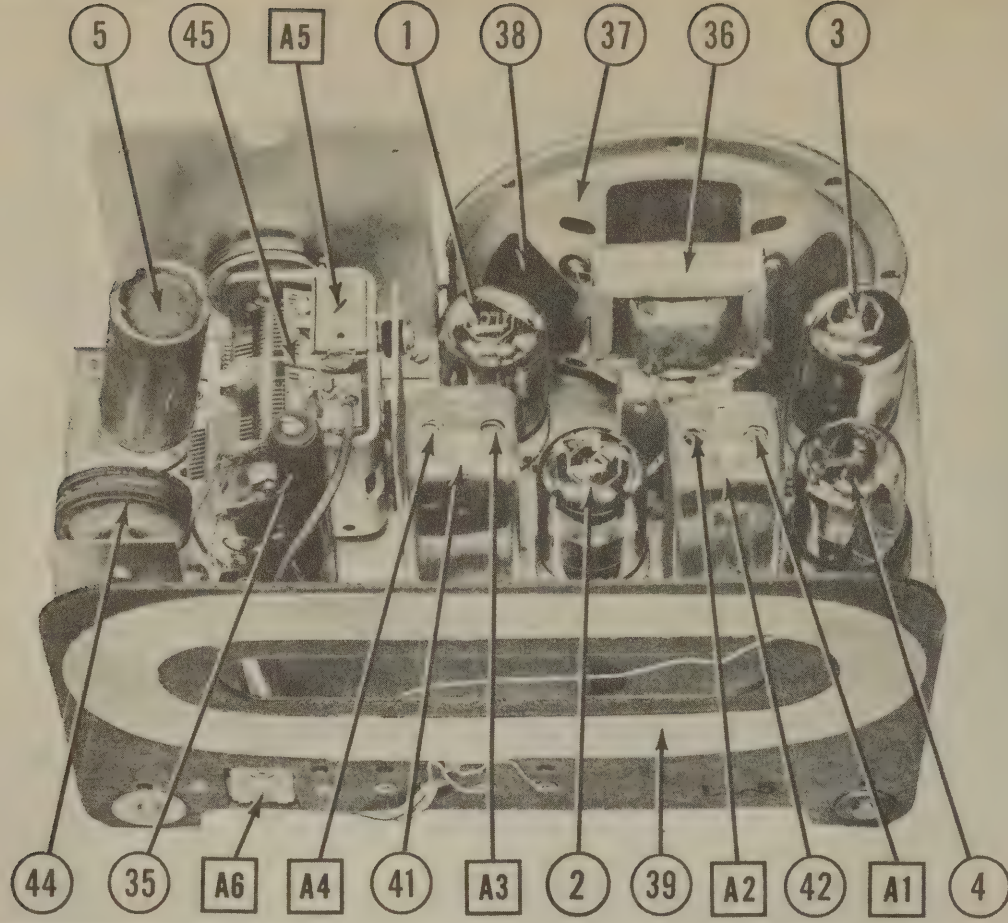
ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		TRAV-LER PART No.	IRC PART No.	
21	220K	IR-20	BTS-220K	Red-Red-Yl. Oscillator Grid
22	22K	IR-9	BTS-22K	Red-Red-Or. Oscillator Screen Dropping
23	22K	IR-9	BTS-22K	Red-Red-Or. Oscillator Screen Dropping
24	3.9 Meg.	IR-23	BTS-3.9 Meg.	Or.-White-Grn. AVC Network
25	82K	IR-31	BTS-82K	Gray-Red-Gr. Diode RF Filter
26	10 Meg.	IR-3	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
27	1 Meg.	IR-12	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
28	470K	IR-13	BTS-470K	Yl.-Vl.-Yl. 1st AF Plate Decoupling
29	2.2 Meg.	IR-13	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
30	680	IR-32	BTS-680	Blue-Gray-Bn. Filament String
31	270K	IR-33	BW-270	Red-Vl.-br. Filament String - See Note 3
32	330K	IR-21	BW-330	Or.-Or.-Br. Filament String
33	1200K	IR-34	BTS-1200	Br.-Red-Red Filter
34	75K	IR-35	BW-2-68	Vl.-Grn.-blk. Surge Limiter - See Note 4
35A	1050K			Filament String
35B	1050K			"
35C	40K			"

Note 3 - Some models use two 500K resistors in parallel.

Note 4 - Some models use two 150K 1 watt resistors in parallel.

Note 5 - Some models use a 60K section of Item 35 paralleled by a 150K 1 watt resistor.

CHASSIS-TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	PRI. SEC.	PRI. SEC.	THORDARN	STANCOR	THORDARN	
36	8400Ω	3.1Ω	250Ω	.4Ω	SPK-5	A-3878*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

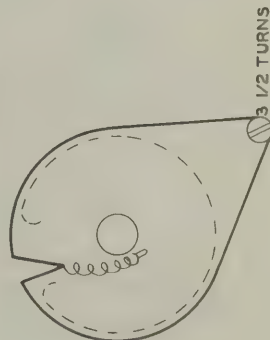
ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	TRAV-LER	JENSEN	
37	PH	3.1Ω	ST-1001	ST-1001	
38	4-3/4"	1/2"	SPK-5	Mod. P5-W	1 Cut off flange to clear dial.
			NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT.		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRAV-LER	MEISSNER	
39	Loop Ant.	.1Ω	1.5Ω	LI-5	14-1040	
40	Osc. Coil	.3Ω	19	LI-8	10-8	
41	Input IF	19Ω	20Ω	LI-3	16-6666	
42	Output IF	19.5Ω	19Ω	LI-4	16-6667	

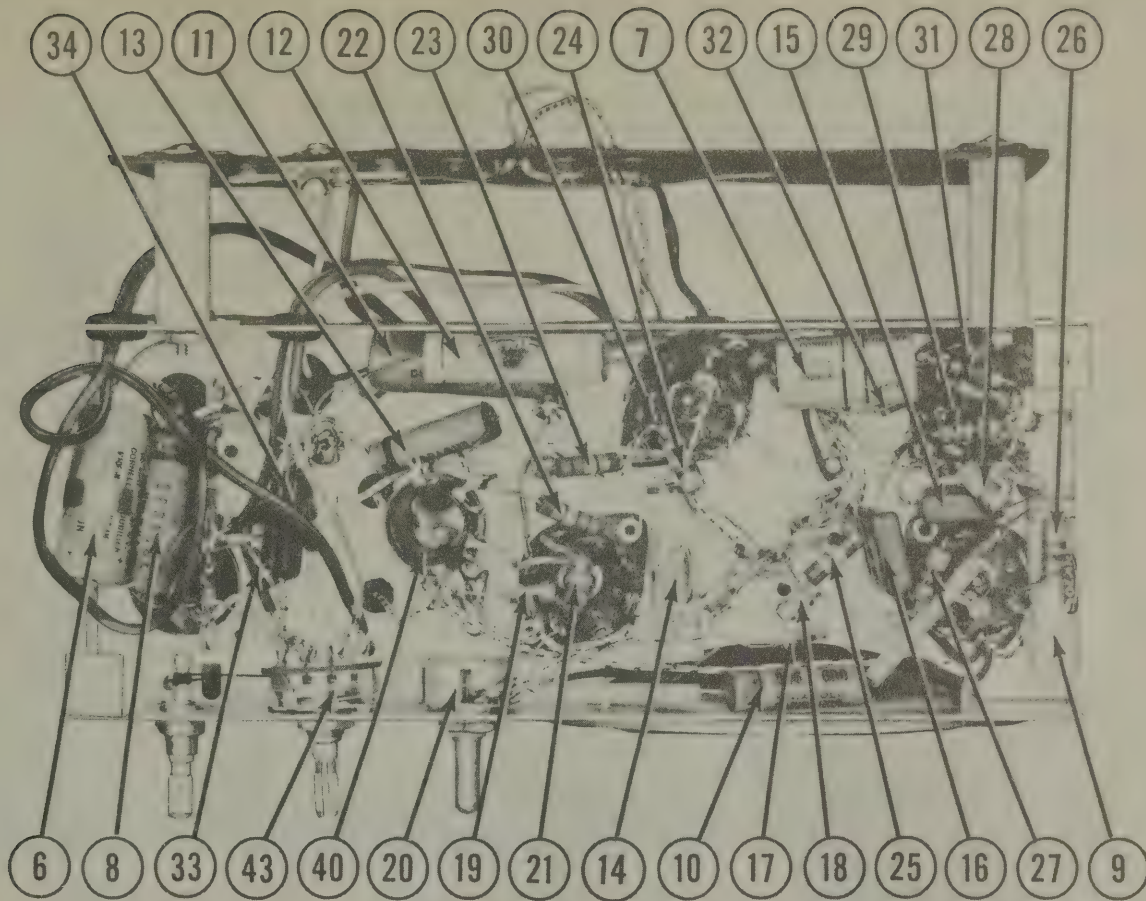
MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
43	Power Switch	SR-3	4 Pole 3 Position
44	Rectifier	SR-1	Selenium
45	Tuning Cap.	GC-2	2 Gang Var. Cap.
AS	Trimmer Cap.	TC-6	Osc. Adj.
AG	"	TC-7	Ant. Adj.

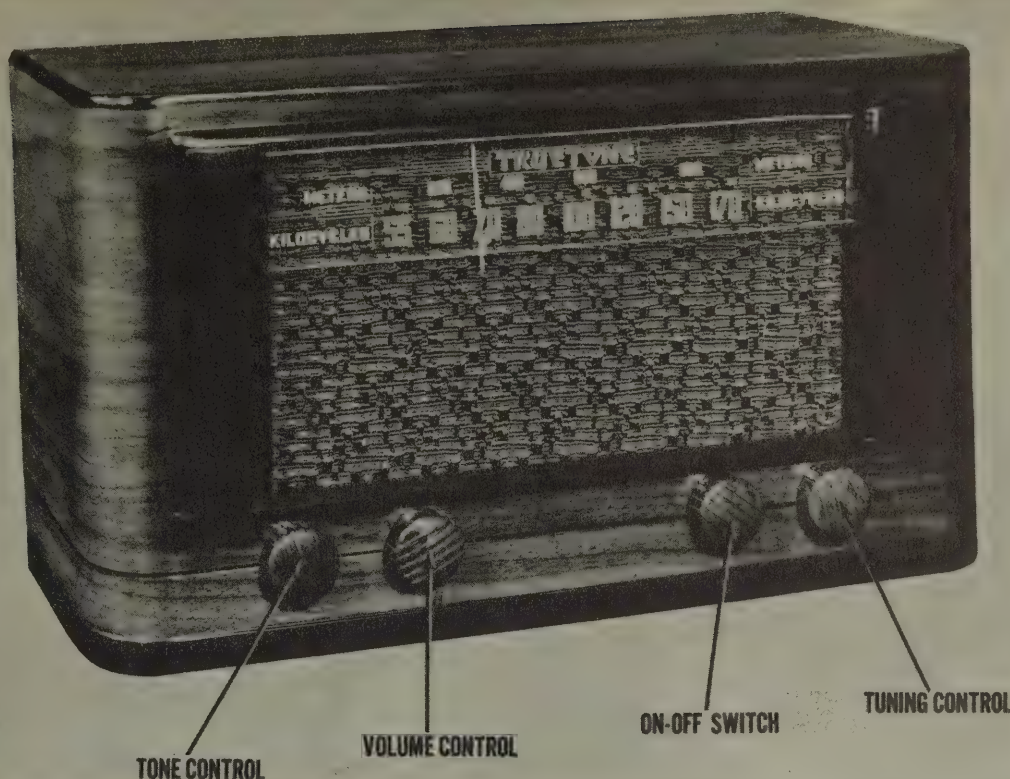


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



TRUETONE
MODEL D2623



TRUETONE
MODEL D2623

TRUETONE MODEL D2623

TRADE NAME Truetone Model D2623 MANUFACTURER Western Auto. Supply Co., 2107 Grand Ave., Kansas City, Mo. TYPE SET AC Operated Superheterodyne - Self Contained Loop Antenna TUBES (SIX) Types, 6SK7GT RF Amp., 6SA7GT Converter, 6SK7GT IF Amp., 6SQ7GT Det.-AVC-AF, 6K6GT Power Output, 5Y3GT Rectifier. POWER SUPPLY 117 Volt AC TUNING RANGE—BROADCAST 535-1725KC RATING .47 Amps. @ 117V AC						
ALIGNMENT INSTRUCTIONS To set pointer, turn variable fully closed and set pointer at the first mark from left end of dial plate. Place coupling link on loop in correct position for external antenna operation while aligning receiver. Volume control in maximum volume position and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 8 of 6SA7. Low side to chassis.	455KC	High freq. end of dial. (Variable fully open).	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output.
250 MMF.	High side to ant. terminal on loop. Low side to grnd. terminal.	1725KC	"	"	A5	" " " "
"	"	1500KC	Tune for maximum output.	"	A6, A7.	Adjust for maximum output in order given.

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRUE-TONE PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7GT	6SK7GT	8N	
2	Converter	6SK7GT	6SK7GT	8AD	
3	IF Amp.	6SK7GT	6SK7GT	8N	
4	Det.-AFC-AF	6SK7GT	6SK7GT	8Q	
5	Power Output	6K6GT	6K6GT	7S	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TRUE-TONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7	16 CAP.	A13-274	SP597	DH-16-450	UT-16	CORNEILL-DUBUIER BR1645 Filter
8	16 450	A18-279	SP597	DH-13-450	UT-16	PR8450-16 BR1645
9	.005	A16-153	TP408	S-6-005	TC-25	PR8450-16 BR1645
10	.01	A16-156	TP421	S-4-01	TC-11	6K6-005 D74S1
11	.01	A16-158	TP421	S-4-01	TC-11	484-01 D74S1
12	.05	A16-158	TP426	S-4-05	TC-15	484-05 D74S1
13	.01	A16-152	TP426	S-4-05	TC-15	484-05 D74S1
14	.05	A16-152	TP426	S-4-05	TC-15	484-05 D74S1
15	.05	A16-152	TP426	S-4-05	TC-15	484-05 D74S1
16	.05	A16-152	TP426	S-4-05	TC-15	484-05 D74S1
17	.05	A16-152	TP426	S-4-05	TC-15	484-05 D74S1
18	.05	A16-152	TP426	S-4-05	TC-15	484-05 D74S1
19	.05	A16-152	TP426	S-4-05	TC-15	484-05 D74S1
20	.05	A16-152	TP426	S-4-05	TC-15	484-05 D74S1
21	250	A15-176	MC240	MO-5-325	1FM-45	1488-00025 SW525
22	500	A15-175	MC225	MO-5-45	1FM-45	1488-00005 SW545
23	500	A15-175	MC225	MO-5-45	1FM-45	1488-00005 SW545
24	200		MC237	MO-5-32	1FM-32	1468-00002 SW572

CONTROLS

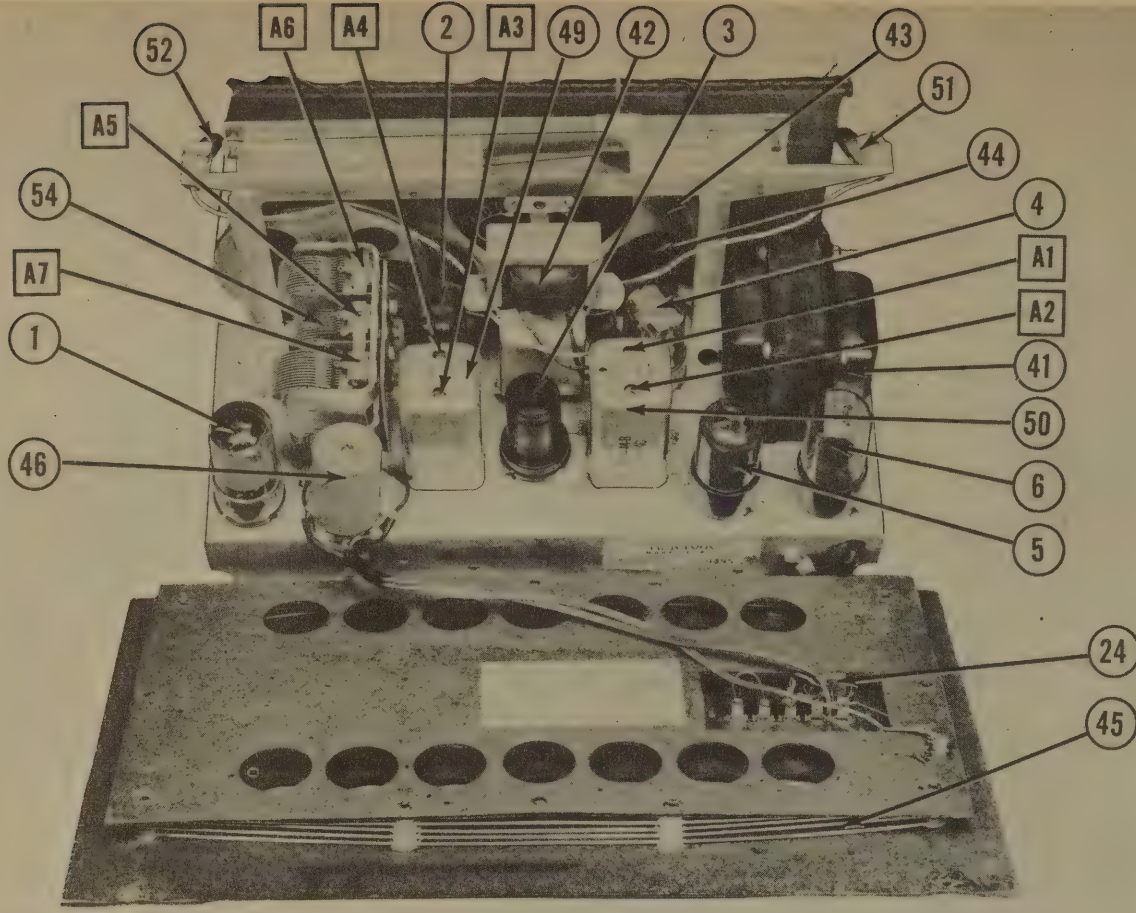
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TRUE-TONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
25	500KΩ	A24-169	TK401	D13-133	AM-30-Z	Volume Control
26	3 Meg.	Not Req.	Not Req.	KSS-3	KSS-3	Attach to 25A per instructions
27	10 Meg.	Not Req.	Not Req.	D13-140	AM-37-Z	Tone Control
28	10 Meg.	Not Req.	Not Req.	KSS-3	KSS-3	Attach to 25A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		TRUE-TONE PART No.	IRC PART No.	
27	220KΩ	A60-667	BTS-220K	Red-Red-Yl. AVC Network
28	100KΩ	A60-671	BTS-100K	Br.-Blk.-Yl. RF Screen Dropping
29	27KΩ	A60-682	BTA-27K	Red-Vl.-Or. Mixer Screen Dropping
30	150KΩ	A60-686	BM-1-150	Br.-Grn.-Br. RF Cathode
31	22KΩ	A60-689	BM-1-22K	Red-Red-Or. Osc. Grid
32	150KΩ	A60-686	BM-1-150	Br.-Grn.-Br. IF Cathode
33	100KΩ	A60-671	BTS-100K	Br.-Blk.-Yl. IF Screen Dropping
34	10 Meg.	A60-663	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
35	220KΩ	A60-667	BTS-220K	Red-Red-Yl. 1st AF Plate Load
36	200KΩ	A60-667	BTS-200K	Red-Blk.-Yl. 1st AF Plate Filter
37	500KΩ	A60-662	BTA-470K	Grn.-Blk.-Yl. Output Grid
38	500KΩ	A60-701	BTA-470K	Grn.-Blk.-Br. Output Cathode
39	82KΩ	A60-700	BTA-82K	Gray-Red-Or. Bleeder
40	100KΩ	A60-669	BT-2-1000	Br.-Blk.-Red Filter

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	TRUE-TONE PART No.	STANCOR PART No.	
41	117V AC 590V CT @ .47A	4.9V AC	6.2V AC @ 1.6A	C80-223	P-6119	T-13R20



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		TRUETONE PART No.	THORDAR'N PART No.	
42	62000	3.52	4800	640 Parts of B79-342	A-38761 T228471	†Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.		TRUETONE PART No.	JENSEN PART No.	
43	PM	3.53		B79-341	ST-112	
44	CORE DIA.	VC DIA.		B79-342 *	Mod. P8-T	* Alternate speaker assembly.
	6-1/16"	1/2"		NOT READILY REPLACABLE—USE COMPLETE SPEAKER UNIT.		

R F COILS

ITEM No.	USE	DC RES.			REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.		TRUETONE PART No.	MEISSNER PART No.	
45A	Loop Ant.	00	00		S84-50		
B	"	00	00		S84-52		For Mahogany Cabinet
46	Ant. Coil	572	42		10-451		" Ivory
47	RF	630	2.50		10-452		
48	Osc.	"	50		10-446		
49	Input IF	17.50	260		10-412		
50	Output IF	132			16-6658		
					16-6680†		

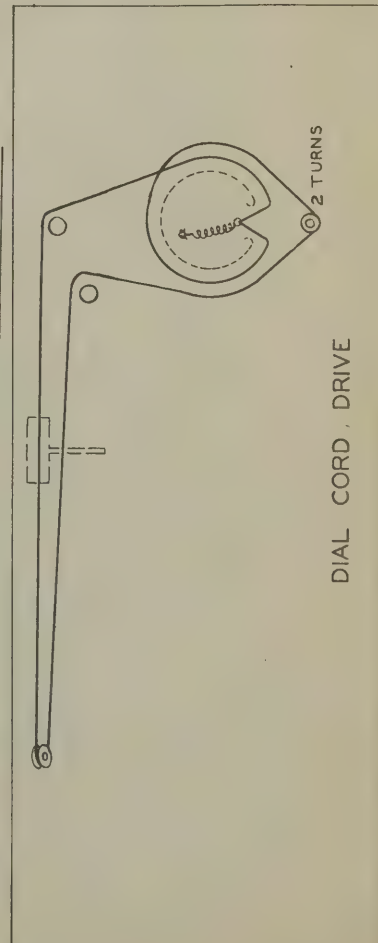
†From low end of secondary winding, add 250 MFD cap. to ground, 1 Meg. resistor to second diode, 50KΩ resistor to high side volume control.

DIAL LIGHT

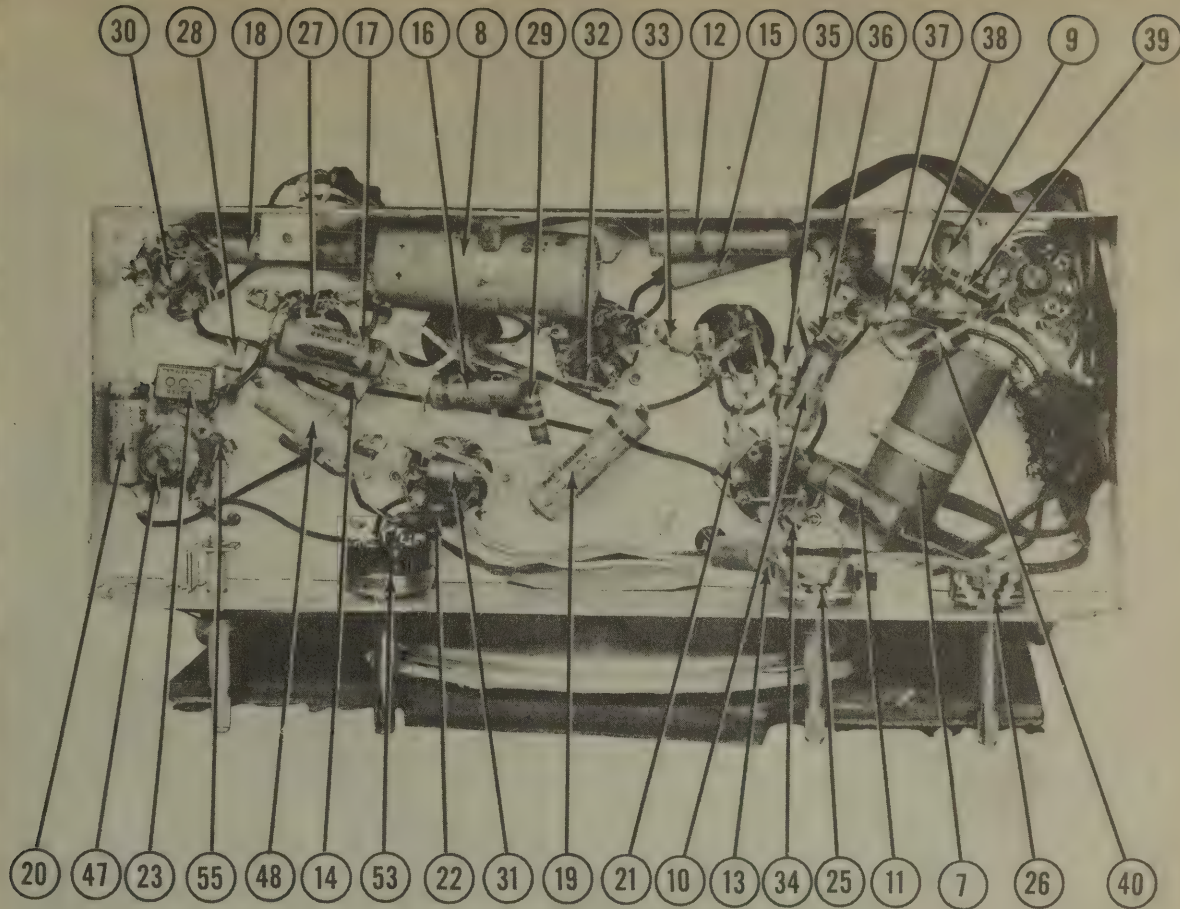
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	TRUETONE PART No.	
51	Bayonet	6-8	0.25	Blue		
52.	"	6-8	0.25	"		Type 44

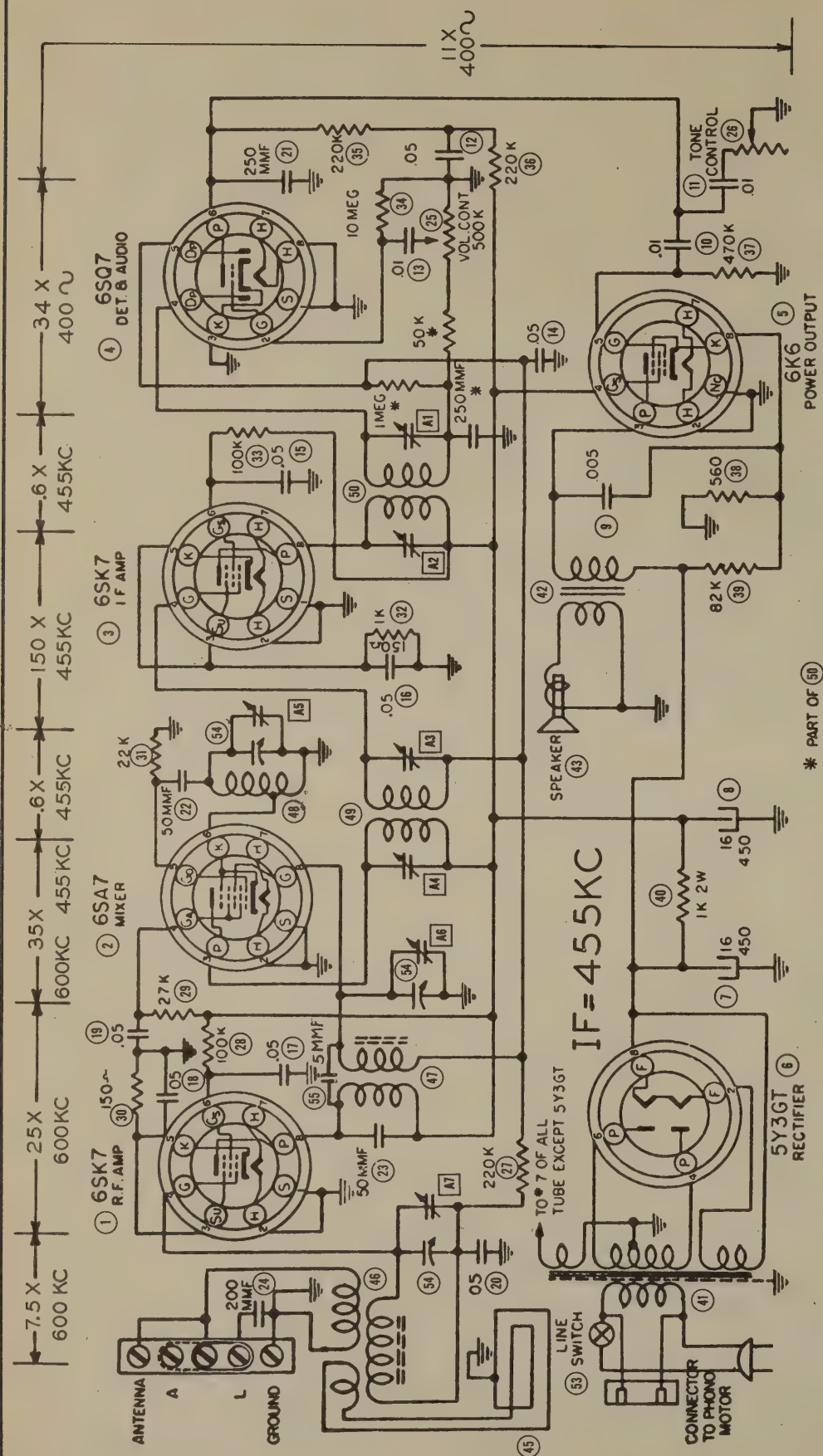
MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
53	Switch	A69-169	On-Off
54	Tuning Cap.	D19-186	3 gang Variable Cap.
55A	Capacitor	"	2 MUF - Not used in all models.
B	"	"	"



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0V	0V	1.4VDC	-0.7VDC	1.4VDC	70VDC	6.2VAC	2.60VDC
2	6SA7GT	0V	0V	260VDC	85VDC	-4.1VDC	0V	6.2VAC	-35VDC
3	6SK7GT	0V	0V	6.6VDC	-35VDC	6.6VDC	11.2VDC	6.2VAC	260VDC
4	6SQ7GT	0V	-8VDC	0V	-35VDC	-15VDC	85VDC	6.2VAC	0V
5	6K6GT	0V	0V	275VDC	260VDC	0V	172VDC	6.2VAC	19VDC
6	5Y3GT	288VDC	288VDC	0V	285VAC	0V	285VAC	0V	288VDC

RESISTANCE READINGS

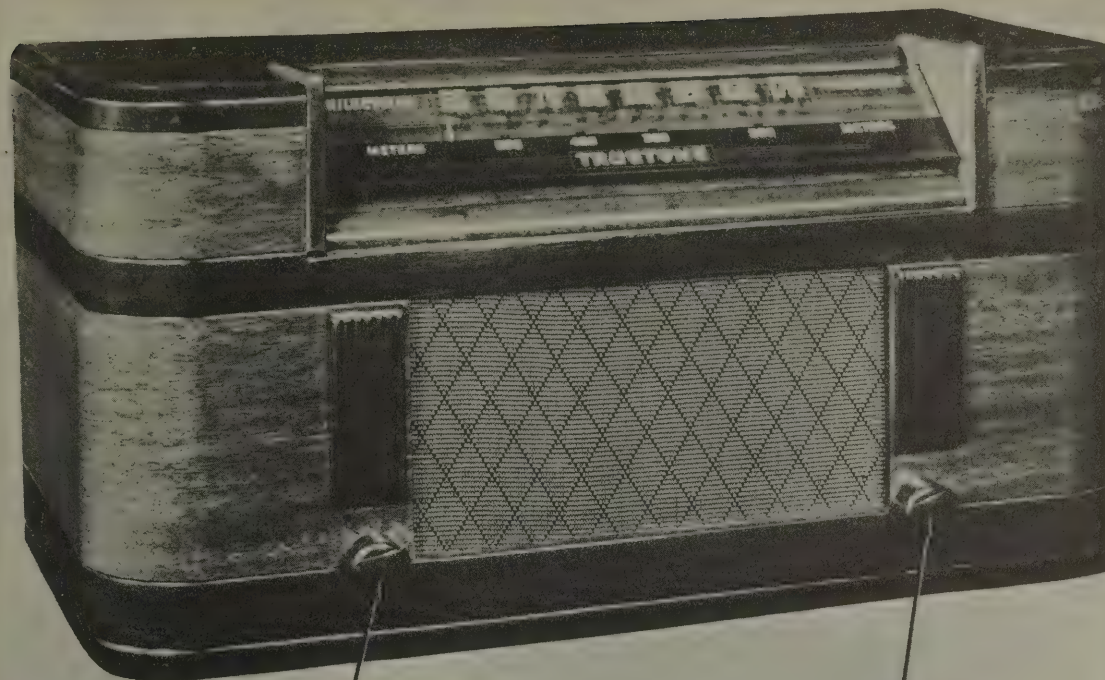
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0 Ω	0 Ω	150 Ω	1.6 MEG	150 Ω	160 K Ω	1 Ω	56 K Ω
2	6SA7GT	0 Ω	0 Ω	56 K Ω	80 K Ω	21.5 K Ω	.5 Ω	1 Ω	1.4 MEG
3	6SK7GT	0 Ω	0 Ω	150 Ω	1.4 MEG	150 Ω	160 K Ω	1 Ω	56 K Ω
4	6SQ7GT	0 Ω	11 MEG	0 Ω	1.4 MEG	520 K Ω	500 K Ω	1 Ω	0 Ω
5	6K6GT	0 Ω	0 Ω	56 K Ω	56 K Ω	500 K Ω	250 K Ω	1 Ω	490 Ω
6	5Y3GT	56 K Ω	56 K Ω	INF	210 Ω	INF	220 Ω	INF	56 K Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

TRUETONE MODEL D2644

TRUETONE
MODEL D 2644

TRADE NAME	Truetone, Model D2644		
MANUFACTURER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.		
TYPE SET	Battery Operated Superheterodyne Receiver		
TUBES (FOUR)	Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF; 3Q5GT Power Output.		
POWER SUPPLY	90 Volt "B" Battery & 1½ Volt "A" Battery-Burgess Type 17G-D60 or equiv.)		
TUNING RANGE—BROADCAST	535-1725KC	RATING	14MA @ 90V DC & 245MA @ 1.5V DC

Volume control at maximum volume position and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1MFD.	High side to grid cap of 1A7. Low side to chassis.	455KC	High freq. end of dial. (Variable fully open).	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output.
250 MMF	High side to ant. lead. Low side to chassis.	1725KC	"	"	A5	" " " "
"	"	1500KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT		
1	Converter	1A7GT	1A7GT	7Z	
2	IF Amp.	1N5GT	1N5GT	5Y	
3	Det.-AVC-AF	1H5GT	1H5GT	5Z	
4	Power Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TRUETONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
5	CAP. 4	A18-273	TC40	M-4-150	UT-41	BR415 Pwr. Supp. Bypass
6	0.002		TP405	S-6-002	TC-22	DT652 3Q5 Plate Bypass
7	0.01		TP426	S-4-01	TC-11	DT451 Audio Coupling
8	0.01		TP426	S-4-01	TC-11	DT451 Audio Coupling
9	0.02		TP423	S-4-02	TC-12	DT452 IF Grid Capacitor
10	0.05		TP426	S-4-05	TC-15	DT455 Conv. Screen Bypass
11	0.1		TP428	S-4-1	TC-1	DT4F1 RF Bypass Pwr. Supp.
12	0.05		TP428	S-4-05	TC-15	DT455 AVC Filter
13	250		MC240	M0.5-325	LFM-325	5W5T25 Audio Plate Bypass
14	50		MC225	M0.5-45	LFM-45	5W5Q5 Osc. Grid Capacitor
15	50		MC225	M0.5-45	LFM-45	5W5Q5 Pri. Ant. Shunt

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	1 Meg. 1 Shaft	A24-165	MK402	U13-137	AM-63-Z	Volume Control
B	Switch	Not Req.	Not Req.	E 42	KSS-3	Attach to 16A per instructions
C	Switch		127		SW-42	

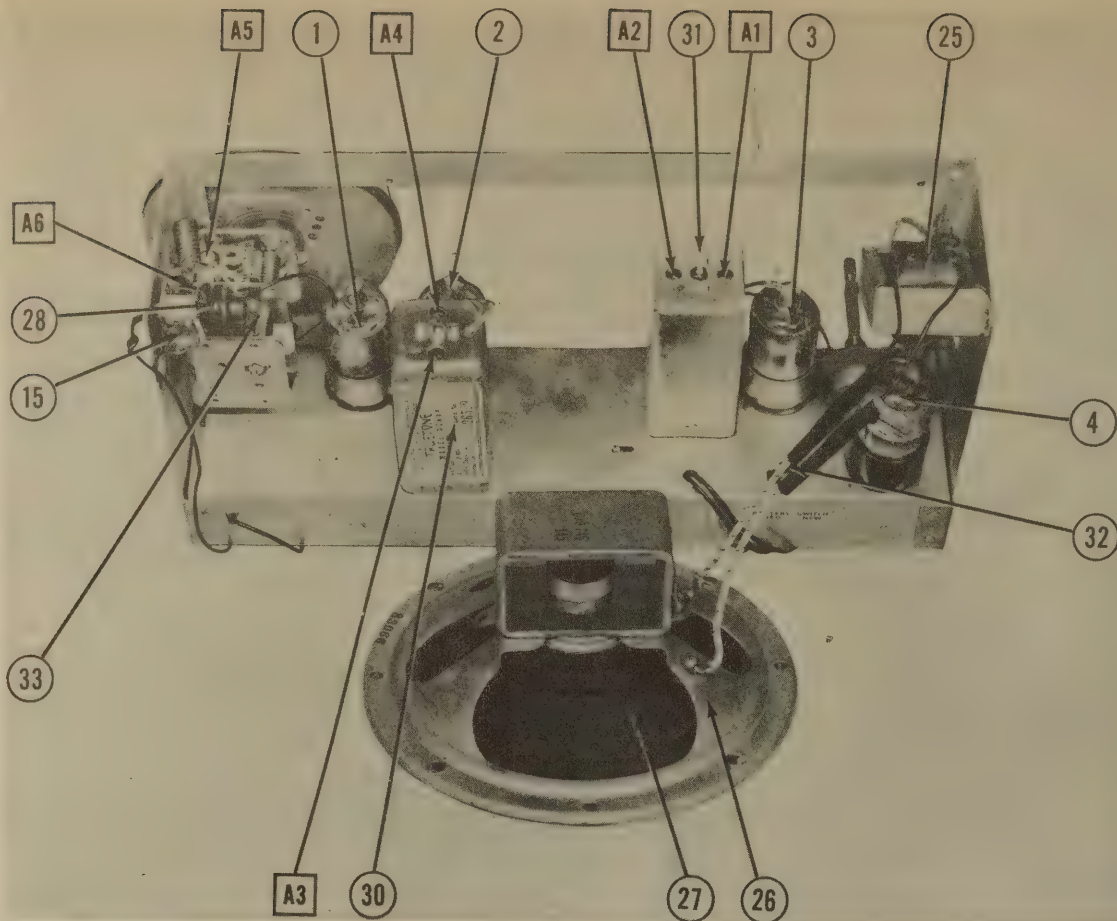
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		TRUETONE PART No.	IRC PART No.	
17	220KΩ		BTS-220K	Red-Red-Yl. Osc. Grid
18	47KΩ		BTS-47K	Yl.-Vl.-Or. Screen Dropping
19	2.2 Meg.		BTS-2.2 Meg.	Red-Red-Grn. IF Grid
20	4.7 Meg.		BTS-4.7 Meg.	Yl.-Vl.-Grn. 1st AF Grid
21	470KΩ		BTS-470K	Yl.-Vl.-Yl. 1st AF Plate Load
22	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
23	390Ω		BW-3-390	Or.-White-Br. Bias
24	.75Ω		BW-1-.68	Series Filament

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		TRUETONE PART No.	STANCOR PART No.	THORDAR'N PART No.	
25A	IMPEDANCE 25A10000Ω 3.2Ω 325Ω	A30-225	A-3831	T14S85	*Output Transformer for alternate speaker.
B		A80-218*			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		TRUE-TONE PART No.	JENSEN PART No.	
26A	FIELD PM 3.20	B79-745 Mod. P8-U	ST-111	
27	CONE DIA. 6"	B79-335		Alternate speaker.
		NOT READILY REPLACEABLE USE COMPLETE SPEAKER UNIT.		

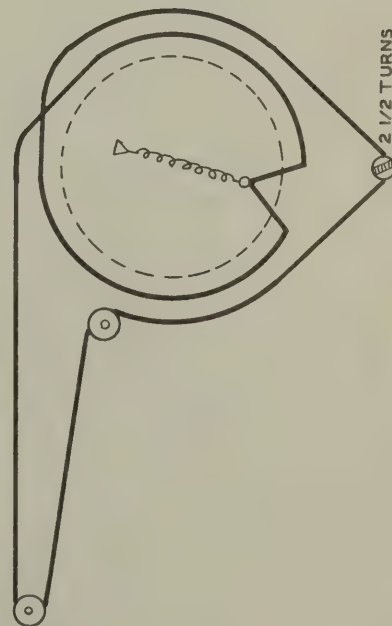
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRUE-TONE PART No.	MEISSNER PART No.	
28	Ant. Coil	500	30	A10-414	14-1025	
29	Osc. Coil	20	60	A10-415	14-1040	
30	Input IF	4.50	4.30	B10-413	13-5740	
31	Output IF	6.50		B10-417	13-5742*	

*Add from low end secondary, 250 MFD cap. to ground, 47K resistor to high end vol. control, 1 Meg. resistor to low end ant. coil secondary.

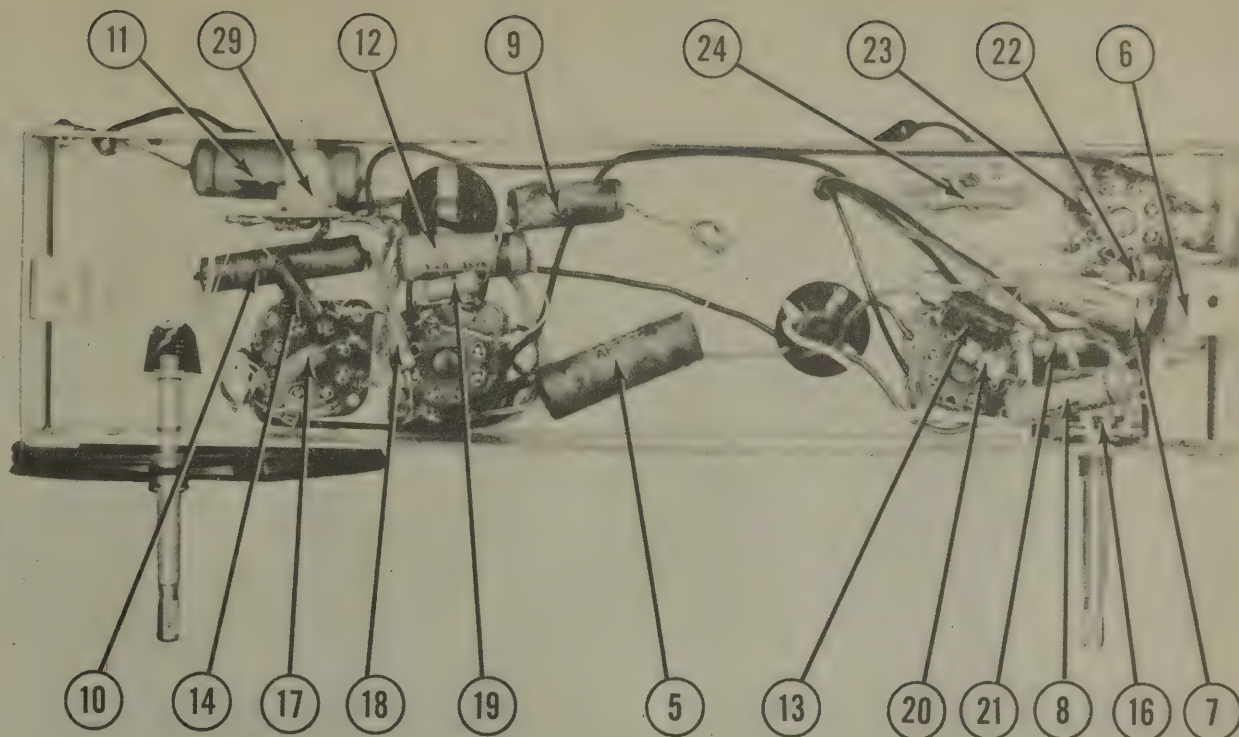
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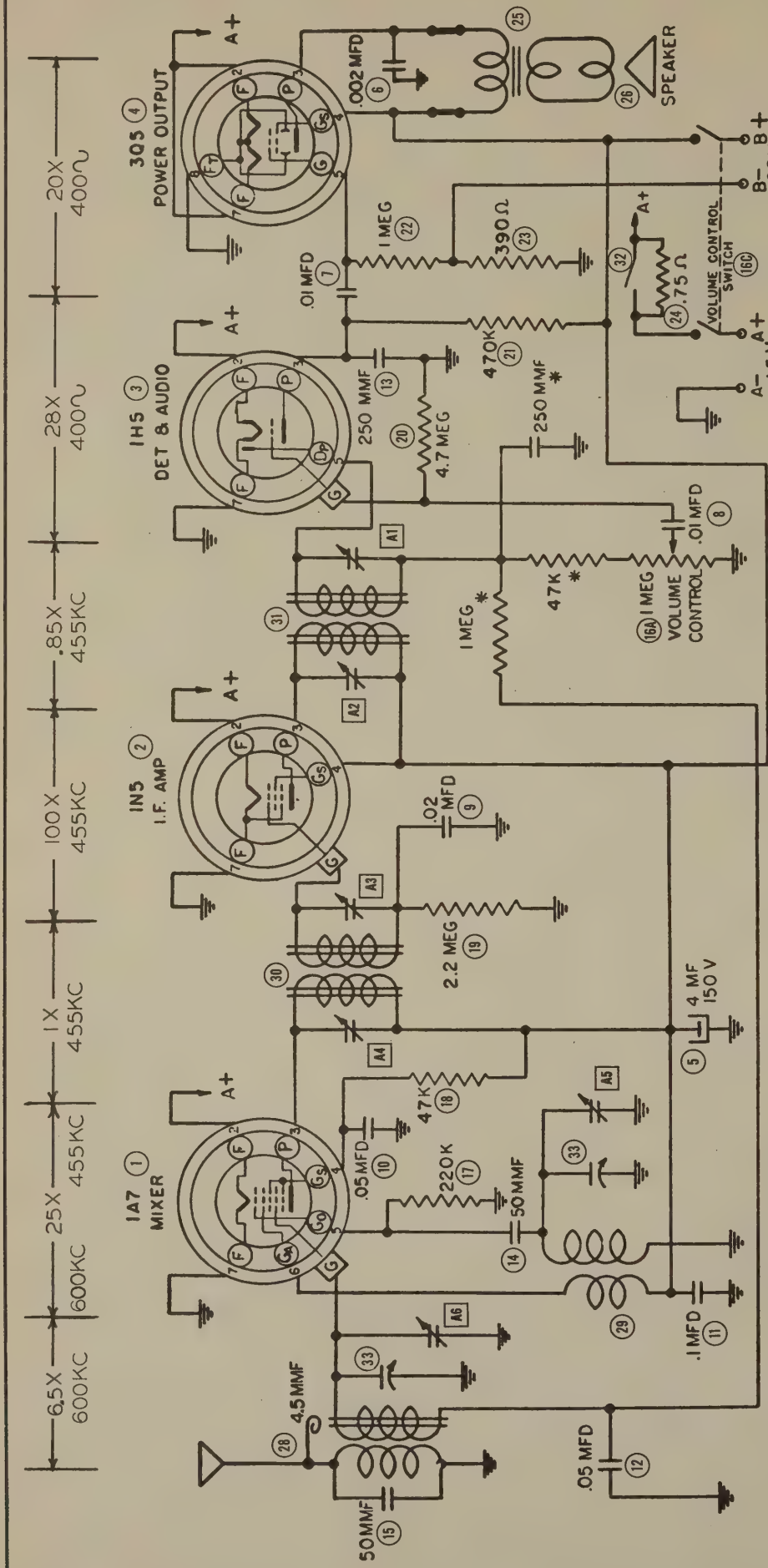
ITEM No.	PART NAME	TRUE-TONE PART No.	NOTES
32	Switch	A89-104	
33	Tuning Cap.	B19-105	Battery Thiriftmaster
	Dial Scale	B67-404	2 Gang Variable Cap.
	Dial Pointer	A58-42	
	Knob	A52-182	
	Cabinet	D42-377	Wood



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





*THESE PARTS LOCATED INSIDE 2ND IF. CAN.

IF=455KC

NOTE: VOLT. & RES. READING TAKEN WITH BATTERY SWITCH IN "NEW" POSITION.

471-30

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
2	IN5GT	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
3	IN5GT	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
4	3Q5GT	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.

RESISTANCE READINGS

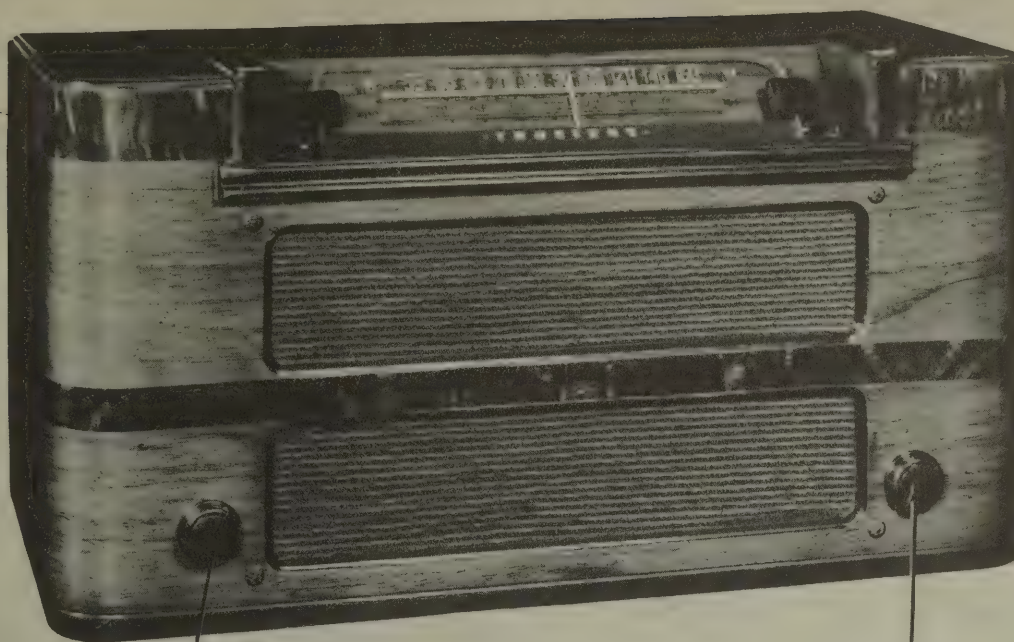
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0 Ω	2 Ω	62K Ω	109K Ω	185K Ω	62K Ω	0 Ω	1 N F	1.9 MEG
2	IN5GT	0 Ω	2 Ω	62K Ω	62K Ω	1 N F	2 MEG	0 Ω	2.8 MEG	2.5 MEG
3	IN5GT	0 Ω	2 Ω	530K Ω	4.5 MEG	1 MEG	1 N F	0 Ω	0 Ω	4.5 MEG
4	3Q5GT	0 Ω	2 Ω	62K Ω	62K Ω	1 MEG	360 Ω	2 Ω	0 Ω	0 Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to ground.

- 1 - DC Voltage measurements are at 20,000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- 5 - Volume control at maximum, no signal applied for voltage measurements.



VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

TRUETONE MODEL D2663

TRADE NAME Truetone, Model D-2663 (Chassis.4C1)
SUPPLIER Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET Battery Operated Superheterodyne Receiver
TUBES (FOUR) Types 1A7GT 1st Det.-Osc, 1N5GT IF Amp, 1H5GT Det.-AVC-AF, 3Q5GT Power Output

POWER SUPPLY 1½ Volt "A" Battery & 90 Volt "B" Battery in Pack Form (Ray-O-Vac #AB-82 or Equiv.)
TUNING RANGE—BROADCAST 535-1630KC

ALIGNMENT INSTRUCTIONS

Before starting alignment check to see that dial pointer reaches each end of dial when tuning control is turned from one end to the other. Before adjusting A5, A6 make sure that each iron core is 1 3/8" or more outside of it's coil form. If necessary turn A7, A8, to make them so. Volume control should be at maximum and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to grid cap. of 1A7 tube #1. Low side to chassis.	455KC	High End	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MFD.	High side to ant. lead and low side to chassis.	1630KC	High End	"	A5,A6	"
200 MFD.	"	1300KC	1300KC	"	A7,A8	"

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PARTS LIST AND DESCRIPTIONS TUBES

ITEM No.	USE	REPLACEMENT DATA		BMA BASE TYPE	INSTALLATION NOTES
		TRUE-TONE PART No.	STANDARD REPLACEMENT		
1	1st Det.-Osc. If Amp.	1A7GT	1N5GT	7Z	
2	Det.-AVC-AV	1N5GT	1N5GT	5Y	
3	Power Output	3C5GT	3C5GT	5Z	
4				7AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	VOLTS	REPLACEMENT DATA			IDENTIFICATION CODES AND INSTALLATION NOTES
			TRUE-TONE PART No.	SOLAR PART No.	SPRAGUE PART No.	
5	150	6744-2	M-4-150	PRS150-4	UT-41	TC40
6	.005	600	S-6-005	TC-25	TC-25	TP408
7	.01	400	64B1-25	S-4-01	TC-11	TP421
8	.01	400	64B1-25	S-4-01	TC-11	TP421
9	.05	200	64B1-32	S-4-05	TC-15	TP426
10	.01	400	64B1-25	S-4-01	TC-11	TP421
11	.002	600	64B1-14	S-6-002	TC-22	TP405
12	.01	400	64B1-25	S-4-01	TC-11	TP421
13	.01	400	64B1-25	S-4-01	TC-11	TP421
14	.01	400	64B1-25	S-4-01	TC-11	TP421
15	250	500	58F7-22	M-5-325	IF-325	TP421
16	250	500	58F7-17	M-5-31	IF-31	TP421
17	100	500	58F7-17	M-5-31	IF-31	TP421
18	800	500	58F7-31	M-5-38	MS-38	TP421
19	800	500	58F7-31	M-5-38	MS-38	TP421
20	200	500	58F7-31	M-5-32	IF-32	TP421
21	20	500	58F7-31	M-5-425	MS-42	TP421
22	120	500	58F7-31	M-5-31	IF-31	TP421
23	20	500	58F7-31	M-5-425	MS-42	TP421

*Not used in all models.

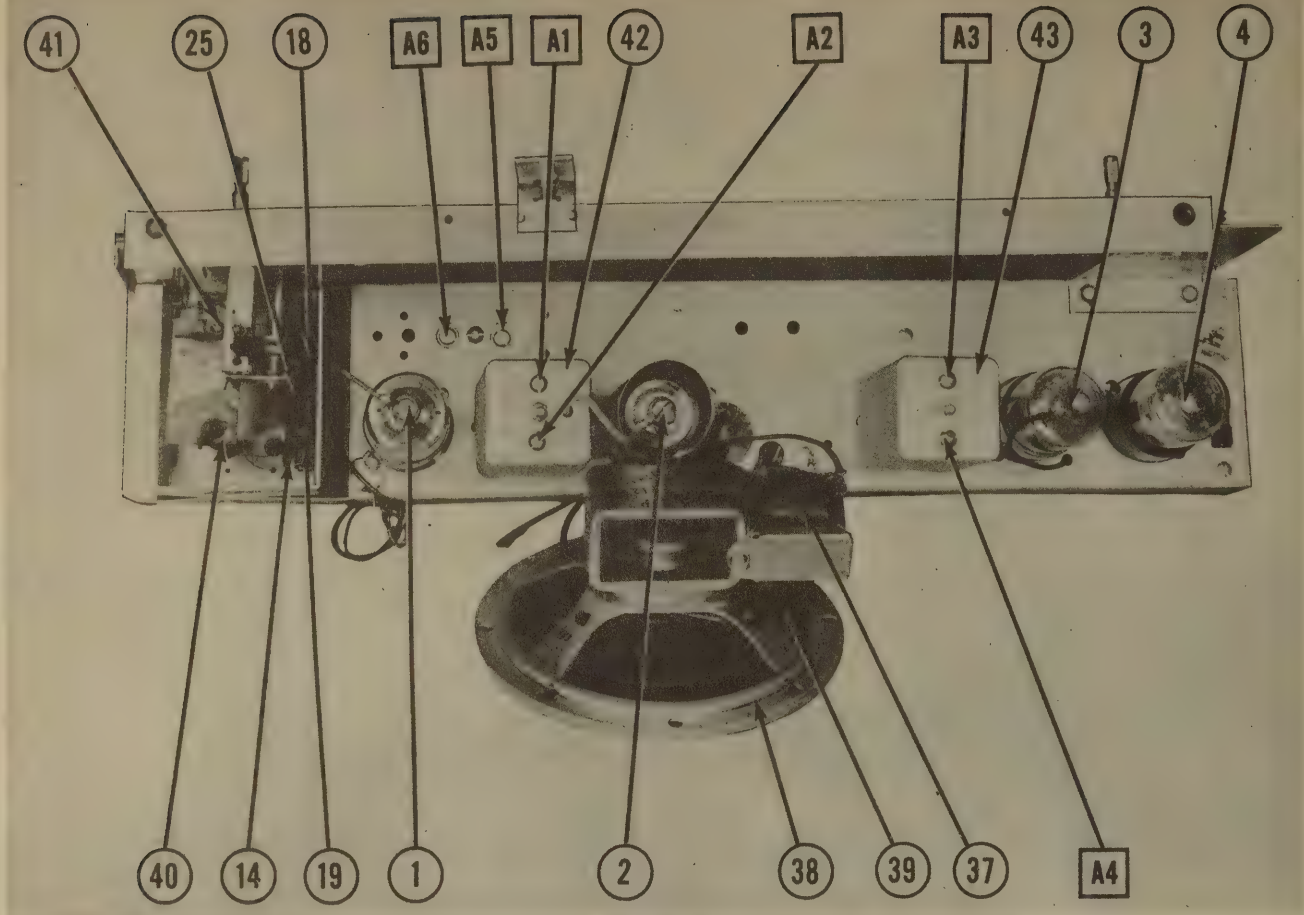
CONTROLS

ITEM No.	RATING RESISTANCE	WATTS	REPLACEMENT DATA			INSTALLATION NOTES
			TRUE-TONE PART No.	MALLORY PART No.	CLAROSTAT PART No.	
24A	1 Meg.	1	75B1-1	1K402	4M-63-Z	Volume Control. Attach to 24A per instructions.
B	Not Req.			Not Req.	KSS-3	" " " "
C	Switch			1K27	SW-42	" " " "

RESISTORS

ITEM No.	RATING RESISTANCE	WATTS	REPLACEMENT DATA			IDENTIFICATION CODES
			TRUE-TONE PART No.	MALLORY PART No.	IRC PART No.	
25	15KΩ	1/2	60B2-153	60B2-153	60B2-153	Br.-Grn.-Or. Antenna Loading
26	470KΩ	1/2	60B2-474	60B2-474	60B2-474	Yl.-Vl.-Yl. AVC Network
27	220KΩ	1/2	60B2-224	60B2-224	60B2-224	Red-Red-Yl. Oscillator Grid
28	33KΩ	1/2	60B2-333	60B2-333	60B2-333	Yl.-Vl.-Yl. Converter Screen Dropping
29	4.7 Meg.	1/2	60B2-475	60B2-475	60B2-475	Yl.-Vl.-Yl. If Grid
30	2200Ω	1/2	60B2-222	60B2-222	60B2-222	Red-Red-Red. " Plate Network
31	2.2 Meg.	1/2	60B2-225	60B2-225	60B2-225	Red-Red-Grn. AVC Network
32	4.7 Meg.	1/2	60B2-475	60B2-475	60B2-475	Yl.-Vl.-Yl. 1st Af Grid
33	1 Meg.	1/2	60B2-105	60B2-105	60B2-105	Br.-Blk.-Grn. " Plate Load
34	1 Meg.	1/2	60B2-105	60B2-105	60B2-105	Br.-Blk.-Grn. Output Grid
35	250Ω	1/2	60B2-391	60B2-391	60B2-391	Or.-White-Br. Bias
36	.75	1/2	61A2-1	61A2-1	61A2-1	Yl.-Grn.-Silver Battery Saver

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE PRL.	DC RES. SEC.	PRI. SEC.	TRUE-TONE PART No.	STANCOR PART No.	THORDARN PART No.	
37A	7200Ω	3.72	330Ω	.6Ω	Part of 78B15.	A-3878 † T22866†	† Bend mounting tabs down; file out slots and mount on original bracket.
37B					Part of 78B10		Alternate Transformer.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
			TRUETONE PART No.	JENSEN PART No.	
38A	FIELD PM	VC IMP. 3.72	78B15	ST-107	Alternate Speaker
B			78B10	Mod. P5-V	
39	CONE DIA. 4-3/4"	VC DIA. 1/2"	NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT.		

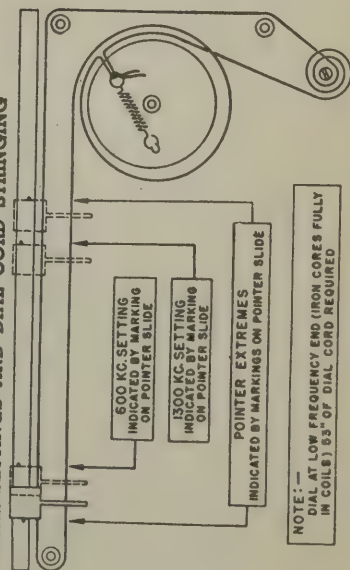
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRUE-TONE PART No.	MEISSNER PART No.	
40	Ant. Coil	3.5Ω	82	AC-105-1		
41	Osc. Coil	14.5Ω	18Ω	45-104-4	16-8658	
42	Input IF	16.5Ω	13.5Ω	7255	16-8660	
43	Output IF	16.5Ω	13.5Ω	7256		
44	RF Choke	16Ω		AB103-1		

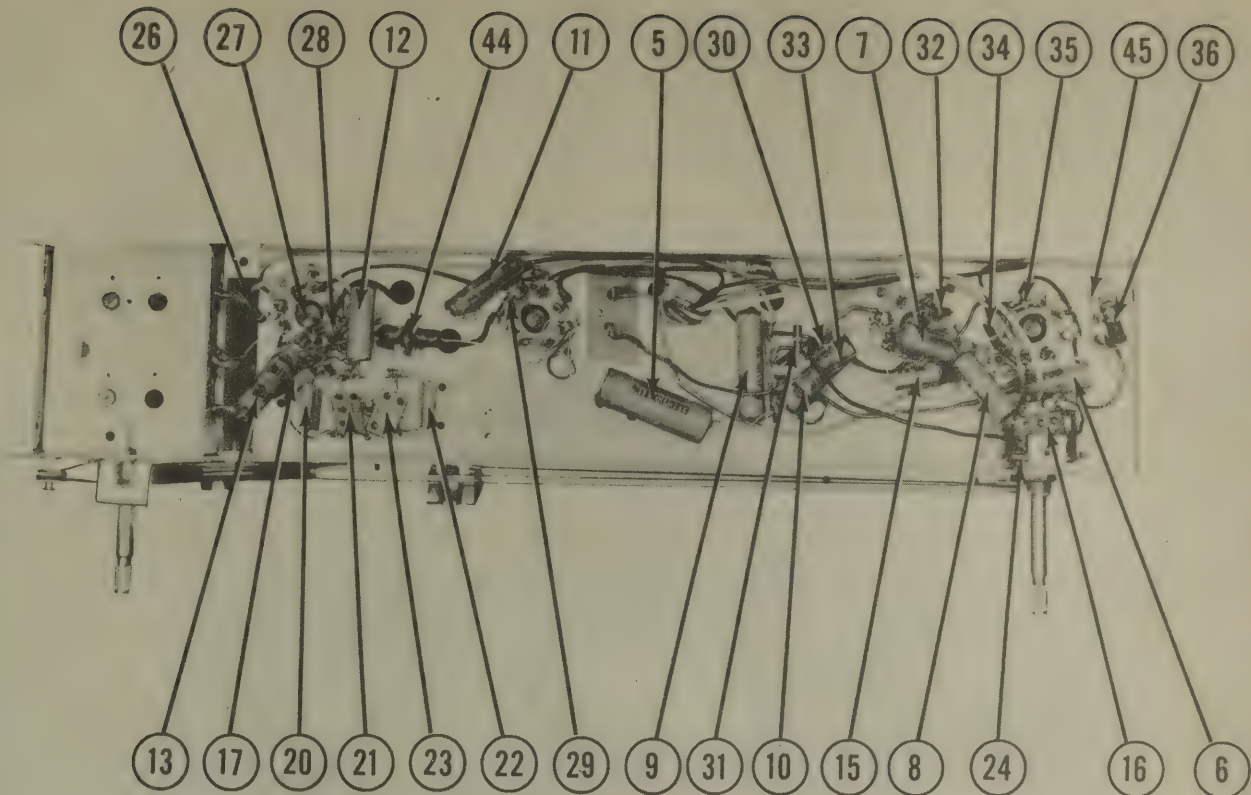
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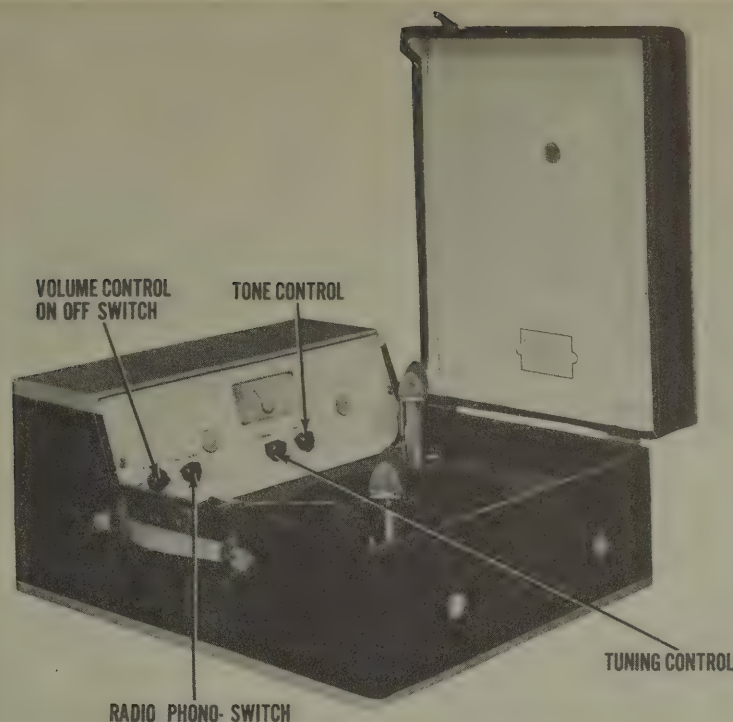
ITEM No.	PART NAME	TRUE-TONE PART No.	NOTES
45	Economizer SW	77A1-6	SPST
A5	Trimmer Cap.	6649-1	{ Osc. & Ant. Adj: (Dual Unit)
A6	Knob	3A10-2	
	Pointer	25A10-1	
	Dial Scale	21B14-1	

POINTER SETTINGS AND DIAL CORD STRINGING



CHASSIS—BOTTOM VIEW





VIEWTONE MODEL RRC-201

TRADE NAME Viewtone Models RC-201A, RRC-201
MANUFACTURER Viewtone Co., 203 E.18th St., New York, N.Y.
TYPE SET AC Operated Combination Phono. - Superheterodyne Radio, Self Contained Loop Antenna
TUBES (FIVE) Types, 14Q7 Converter, 14A7/12B7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.

POWER SUPPLY 117 Volts AC

TUNING RANGE—BROADCAST 540-1725KC

RATING .257 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

To set pointer turn variable fully closed and set pointer to a horizontal position. Remove receiver front panel from cabinet and fasten to receiver. Use isolation transformer if available, if not connect a capacitor in series with low side of signal generator and chassis. When aligning keep loop in same relative position with chassis as when in cabinet. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjustments.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to chassis.	455KC	Variable fully open.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. cap to reduce hum modulation.
	Loop	1500KC	"	"	A5	Connect output of signal generator to a few turns of wire and radiate signal into receiver loop. Adjust for maximum output.
	"	1500KC	Tune for maximum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		VIEWTONE PART No.	STANDARD REPLACEMENT		
1	Converter	14C7	14C7/12B7	8AL	
2	IF Amp.	14A7/12B7	14B6	8W	
3	Det.-AVC-AF	50A5	35Y4	8AA	
4	Power Output	35Y4		5AL	
5	Rectifier				

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		VIEWTONE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
6A	CAP. 50		M-5030-150	TA-530	PRS150-40-40	2N520 Filter-Green
7	30				PRS25-10	-Red
8	10				TC-21	Cath. Bypass
9	.001				TC-12	Line Filter
10	.02				TC-12	Output Plate Bypass
11	.01				TC-11	Audio Coupling
12	.01				TC-11	Tone Compensation
13	.1				TC-11	Audio Coupling
14	100				TC-11	AVC Filter
15	100				TC-11	Audio Plate Bypass
16	100				TC-11	IF Bypass Vol. Cont.
17	100				TC-11	IF Bypass Diode
					TC-11	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		VIEWTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	500KΩ		MR48	D13-133	M-80-Z	Volume Control.
18B	500KΩ		MR48	D13-133	M-80-Z	Attach to 18A per Instructions
19A	200KΩ		M26	41	SW-A	Tone Control.
19B	200KΩ		M26	41	SW-A	Attach to 19A per Instructions

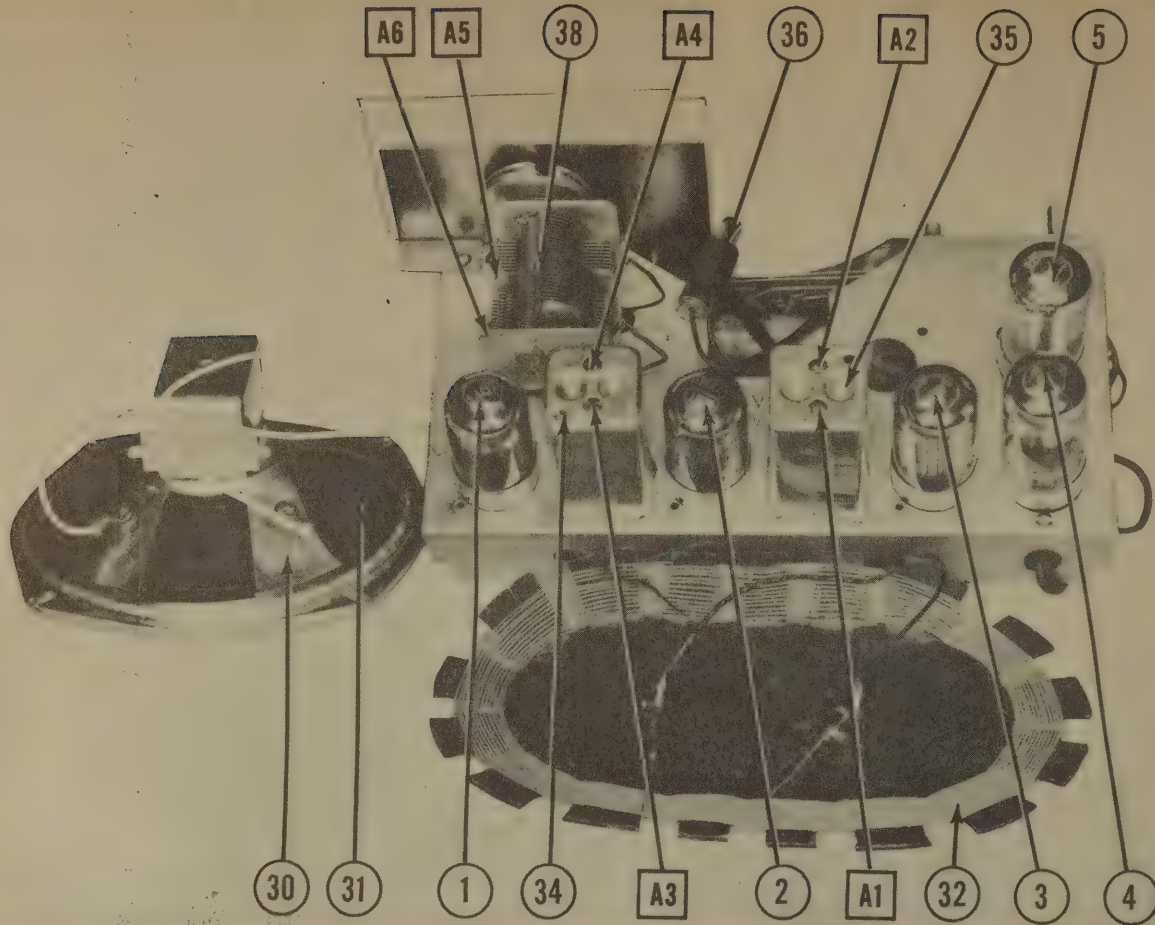
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		VIEWTONE PART No.	IRC PART No.	
20	22KΩ		BTS-22K	Red-Red-Or. Oscillator Grid
21	47KΩ		BTS-47K	Yl.-Vi.-Or. Diode RF Filter
22	270KΩ		BTS-270K	Red-Vi.-Yl. Series Photo
23	10 Meg.		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
24	470KΩ		BTS-470K	Yl.-Vi.-Yl. " Plate Load
25	500KΩ		BTS-500K	Grn.-Blk.-Yl. Output Grid
26	160Ω		BM-1-150	Br.-Blk.-Grn. Cathode
27	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
28	1000Ω		BTH-1000	Br.-Blk.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA		INSTALLATION NOTES
		VIEWTONE PART No.	STANCOR PART No.	
29	IMPEDANCE 32 PRI. SEC. 90Ω		A-3876	
			T22845	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		VIEWTONE PART No.	JENSEN PART No.	
30	FIELD VC IMP. 30		ST-108	
31	CONE DIA. VC DIA. 6" 1/2"		Mod. PG-X	
		NOT READILY REPLACEMENT-USE COMPLETE SPEAKER UNIT.		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	VIEWTONE PART No.	MEISSNER PART No.	
32	Loop		1.5Ω			
33	Osc. Coil		6Ω			
34	Input IF	16Ω	15.5Ω		16-6658	
35	Output IF	14.5Ω	14.5Ω		16-6660	

DIAL LIGHT

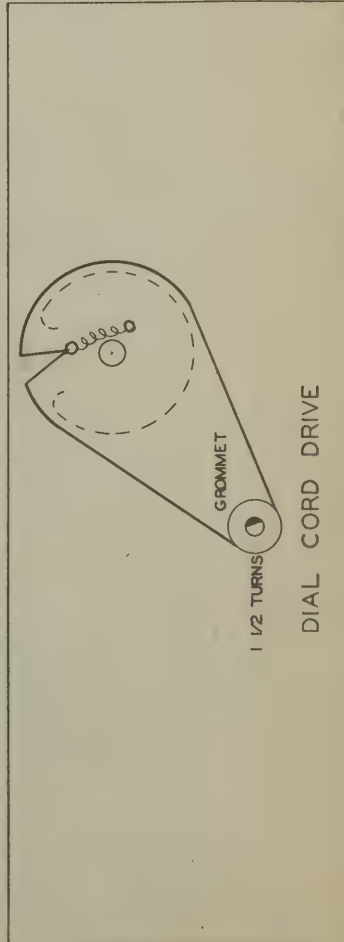
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	VIEWTONE PART No.	
36	Bayonet	6-8	0.15	Brown		Type 47

MISCELLANEOUS

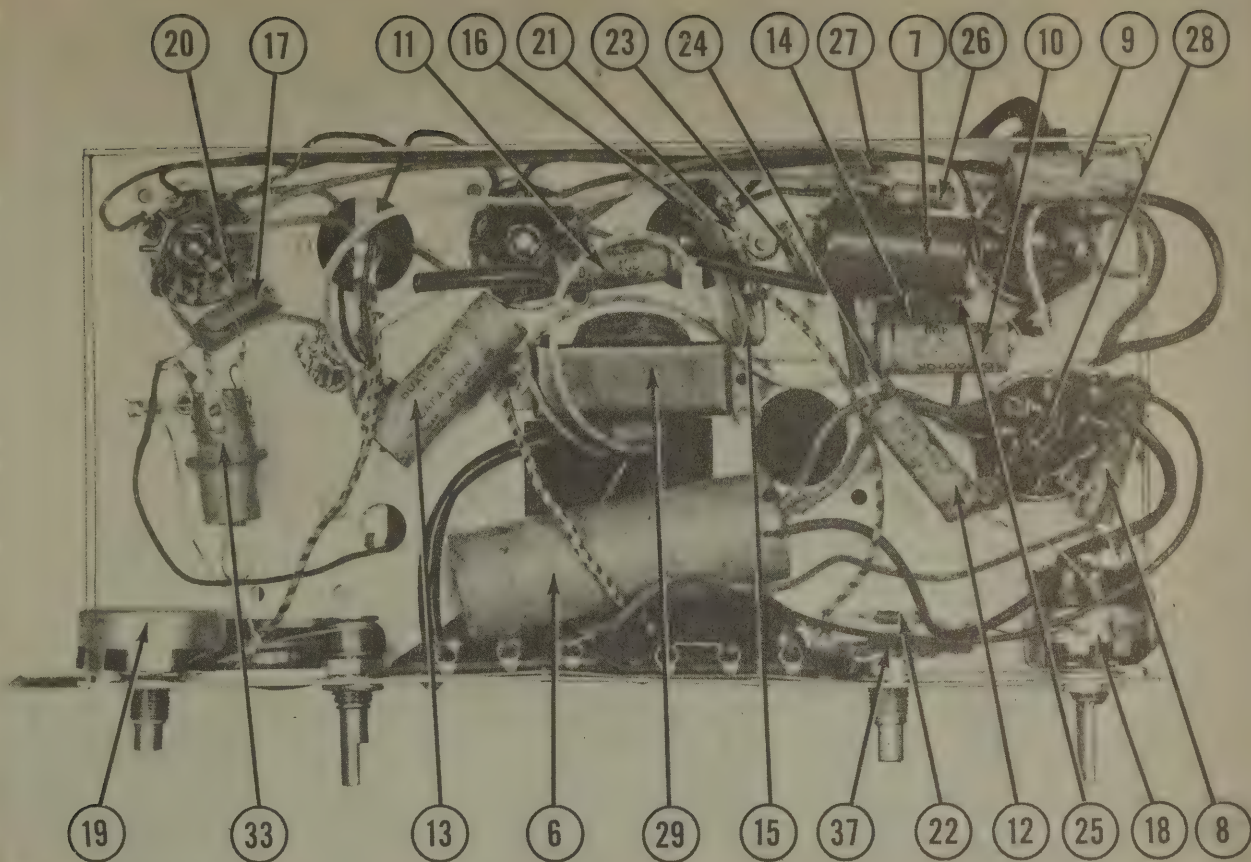
ITEM No.	PART NAME	VIEWTONE PART No.	NOTES
37	Switch		Radio-Phono
38	Tuning Cap.		2 Gang Var. Cap.

DISASSEMBLY INSTRUCTIONS

1. Remove the set screw type control knobs from the radio receiver.
2. Remove the two flat-head screws from dial panel board.
3. Remove the hex nuts from the radio-phonograph and tone control bushings.
4. Disconnect the speaker, phono-motor, and pickup plugs from their respective receptacles.
5. Remove chassis and loop antenna from cabinet. NOTE: Chassis and loop antenna are not fastened to cabinet. Loop is pressed into left side and chassis is held to front control panel by means of nuts on radio-phonograph and tone control bushings.
6. Remove two wood screws holding speaker to cabinet. Remove speaker.



CHASSIS—BOTTOM VIEW



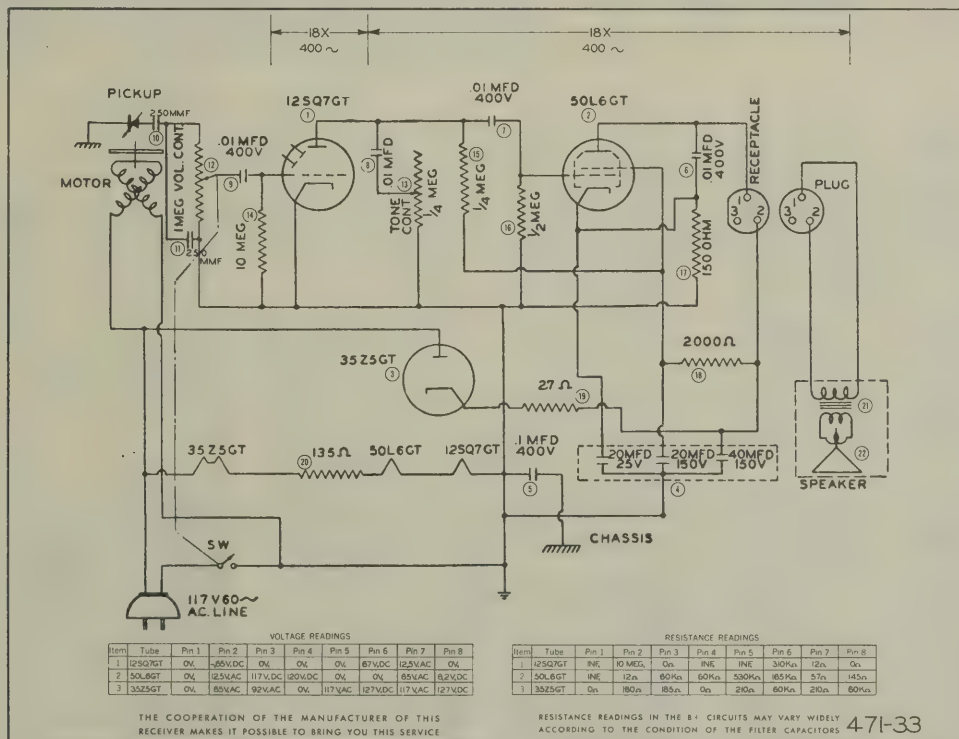


TONE CONTROL

VOLUME CONTROL
ON-OFF SWITCH

VOUGE MODEL 532A-P

TRADE NAME Vogue, Model 532 A-P
MANUFACTURER Sheridan Electronics Corp., 2850 So. Michigan Ave., Chicago, Ill.
TYPE SET AC Operated Portable Record Player with 3 Tube Amplifier & Speaker
TUBES (THREE) Types 12SQ7GT AF Amp., 50L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY 105-125 Volts AC **RATING** - .235 Amps. @ 117 Volts AC



1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.

4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HOWARD W. SAMS & CO., INC.

Indianapolis, Indiana

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		VOGUE PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	AF Amp.	125G7-T	125G7GT	8Q	
2	Power Output	50L6GT	50L6GT	7AC	
3	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		VOGUE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
4A	CAP. 40	15-2	DY-304	EL-343	AF84D4A	Filter
B	150					
C	20					
5	20					
6	.01	16-227	S-6-1	TC-1	694-1	Cath. Bypass
7	.01	16-218	S-4-01	TC-11	484-01	Line Isolation
8	.01	16-218	S-4-01	TC-11	484-01	Output Plate Bypass
9	.01	16-218	S-4-01	TC-11	484-01	Audio Coupling
10	250		1FM-325	1FM-325	1468-00025	Tone Compensation
11	250		1FM-325	1FM-325	1468-00025	Audio Coupling
12	500		MO-5-325	MO-5-325	5M5T25	Phono Coupling *
13	500		MO-5-325	MO-5-325	5M5T25	Phono Bypass *

*Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		VOGUE PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
12A	1 Meg. 1	26-Y-8	UM159	D11-137	M-61-Z	Volume Control.
B	Shaft	Not Req.	SS1	A	Not Req.	Attach to 12A per instructions
13A	250KΩ	26-A-2	UM149	D11-130	M-55-S	Tone Control
B	Shaft	Not Req.	SS1	A	Not Req.	Attach to 13A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		VOGUE PART No.	VOGUE PART No.	IRC PART No.	
14	10 Meg.	25-197	BTS-10 Meg.	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
15	250KΩ	25-130	BTS-270K	BTS-270K	Red-Grn.-Yl. AF Plate Load
16	500KΩ	25-186	BTS-470K	BTS-470K	Grn.-Blk.-Yl. Output Grid
17	150Ω	25-216	BM-1-150	BM-1-150	Br.-Grn.-Br. Cathode
18	1900Ω		BTS-1800	BTS-1800	Br.-White-Red Filter
19	24Ω		BM-8-27	BM-8-27	Red-Yl.-Blk. Surge Limiter
20	135Ω		ABA-150†	ABA-150†	Line Dropping

† Set slider at 135Ω from one end.

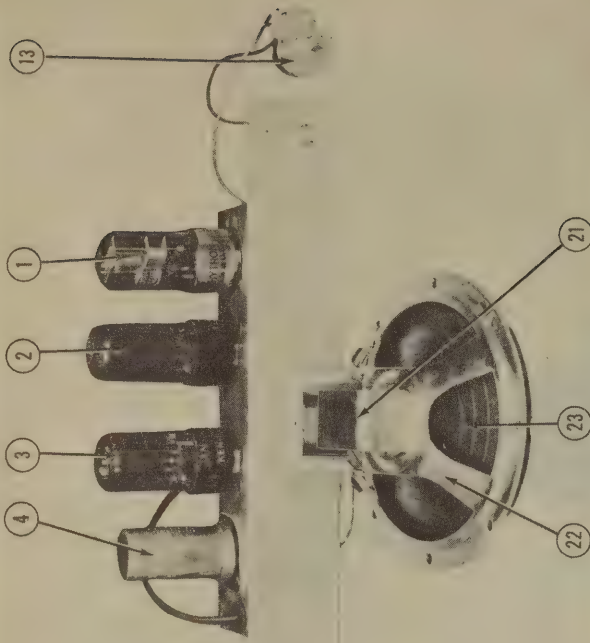
TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		VOGUE PART No.	VOGUE PART No.	THORPARD PART No.	THORPARD PART No.	
21	IMPEDANCE 2200Ω 3.1Ω	230Q	.75Q	A-3876	T-22845	

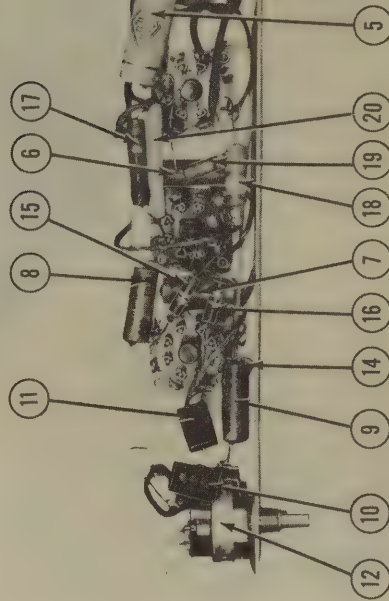
SPEAKER

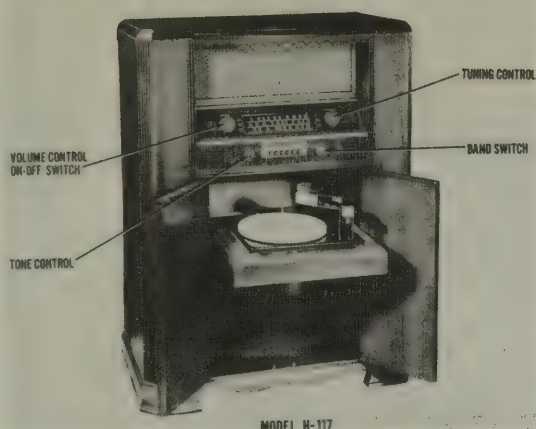
ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		VOGUE PART No.	JENSEN PART No.	
22	FIELD PM	VC IMP. 3.1Ω	ST-105	
23	CONE DIA. 4-3/4"	VC DIA. 1/2"	Mod. PS-X	

NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT.

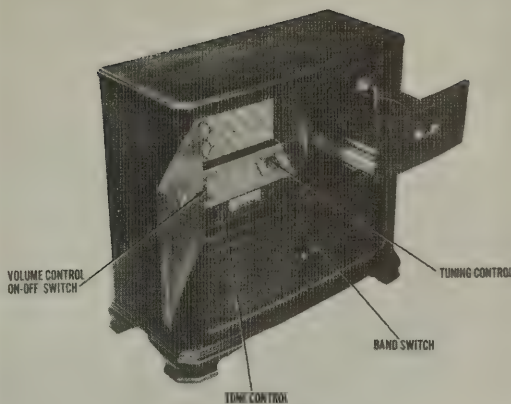


CHASSIS—BOTTOM VIEW





MODEL H-117



MODEL H-119

WESTINGHOUSE MODEL H-119

TRADE NAME	Westinghouse, Model H-119
MANUFACTURER	Westinghouse Electric Corp., Receiver Div., Sunbury Pa.
TYPE SET	AC Operated Combination Automatic Phonograph - Superheterodyne Receiver for Broadcast and FM Bands with Automatic Tuning and Self Contained Loop Antenna.
TUBES (FOURTEEN)	Types, 6SG7 RF Amp., 6SB7Y Converter, 6SG7 1st IF Amp., 6SG7 2nd IF Amp., 6SJ7GT Limiter, 6H6GT Discriminator, 6H6GT AVC-Det., 6SQ7GT 1st AF, 6SQ7GT Phase Inverter, 2-6Y5G Power Output, 6SJ7GT Noise Rectifier, 5U4G Rectifier, 6E5 Tuning Eye.
POWER SUPPLY	117 Volts AC
RATING	1.27 Amp. @ 117 Volts AC
TUNING RANGE-	BROADCAST 530-1750 KC SHORT WAVE 4.85 - 18.0 MC FM 88-108 MC

PUSHBUTTON ADJUSTMENTS

The six pushbuttons and associated adjustments from left to right (facing front of receiver) cover the following frequency ranges: 530 to 900KC, 530 to 900KC, 530 to 900KC, 900 to 1600KC, 900 to 1600KC, and 900 to 1600KC. To set up six different stations for automatic tuning, proceed as follows:

- 1 - Turn on radio and allow at least 5 minutes to warm up before making adjustment.
- 2 - List six desired stations arranged in order from low to high frequencies.
- 3 - Set Phono-band Switch to Broadcast band manual tuning, tune in first station on list (lowest frequency).
- 4 - Set Phono-band Switch for push-button tuning and depress button to extreme left (viewed from front). Adjust B1 to tune in station. Lowest frequency is with screw all the way in.
- 5 - Adjust B2 for maximum volume of station.
- 6 - Repeat adjustments.
- 7 - Follow same procedure for setting up remaining push buttons. Always select a station within frequency range of push button and associated adjustments. B3, B5, B7, B9, B11 are adjusted to tune in station. B4, B6, B8, B10, B12 are adjusted for maximum volume of station.

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PARTS LIST AND DESCRIPTIONS
TUBES

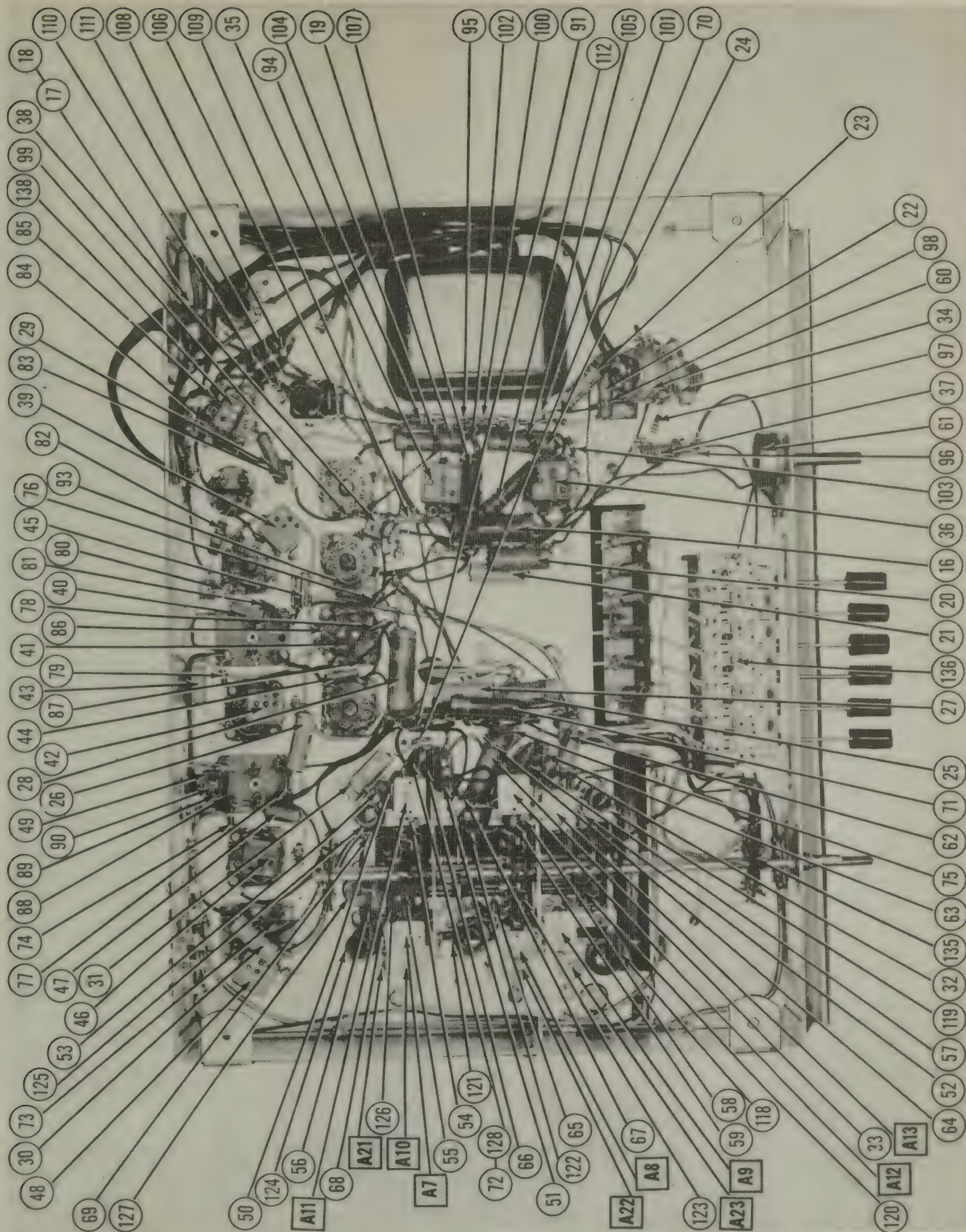
ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		WESTINGHOUSE PART No.	STANDARD REPLACEMENT	
1	RF Amp.	6S7	6S7	
2	Converter	6S7Y	6S7Y	
3	IF Amp.	6S7	6S7	
4	2nd IF	6S7	6S7	
5	Limit	6S7GT	6S7GT	
6	Discriminator	6H6GT	6H6GT	
7	AVC-Det	6H6GT	6H6GT	
8	1st AF	6S7GT	6S7GT	
9	Phase Inverter	6S7GT	6S7GT	
10	Power Output	6Y6	6Y6	
11	Power Output	6Y6	6Y6	
12	Noise Rectifier	6S7GT	6S7GT	
13	Rectifier	5U4G	5U4G	
14	Tuning Eye	6ES	6ES	

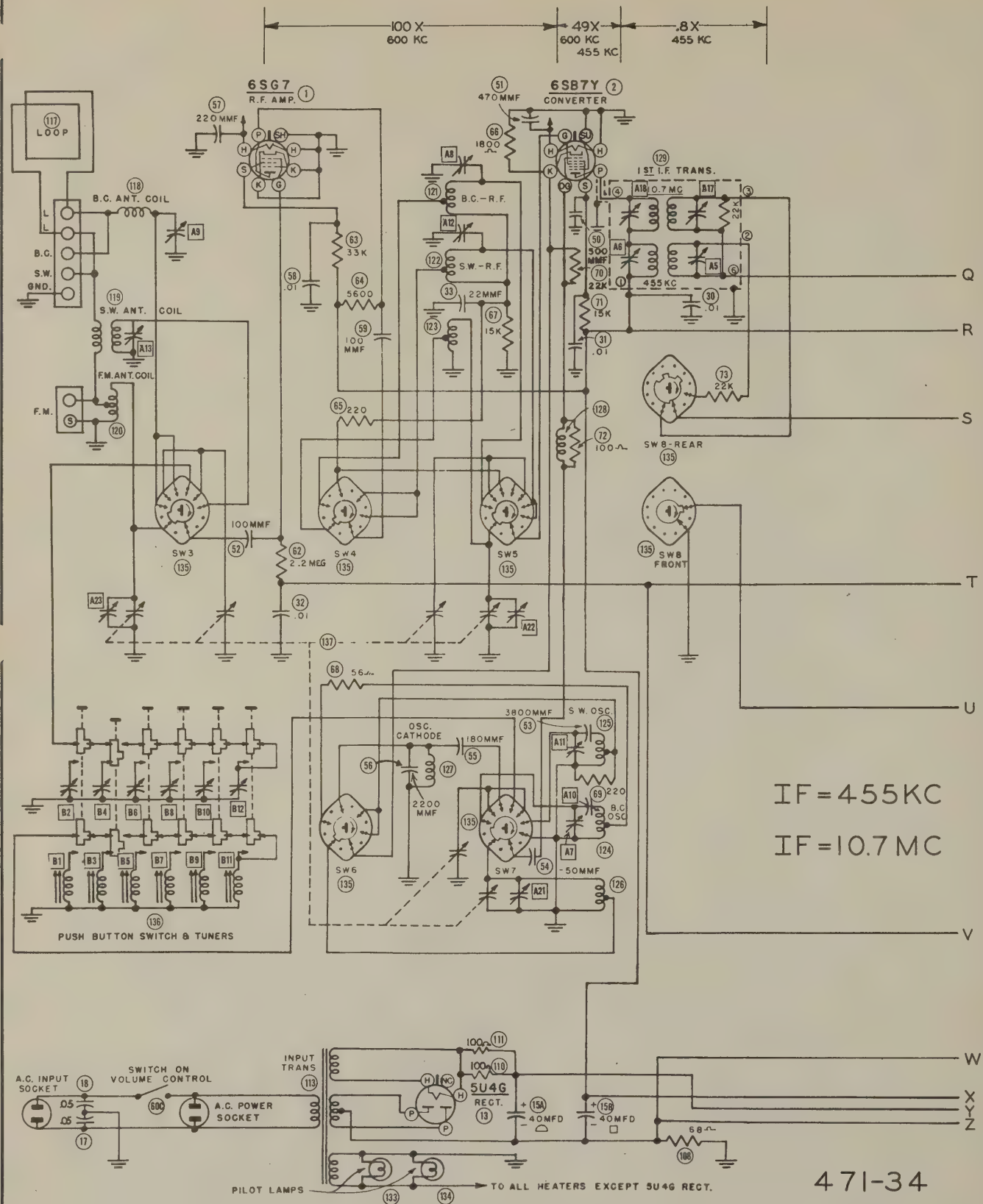
CAPACITORS

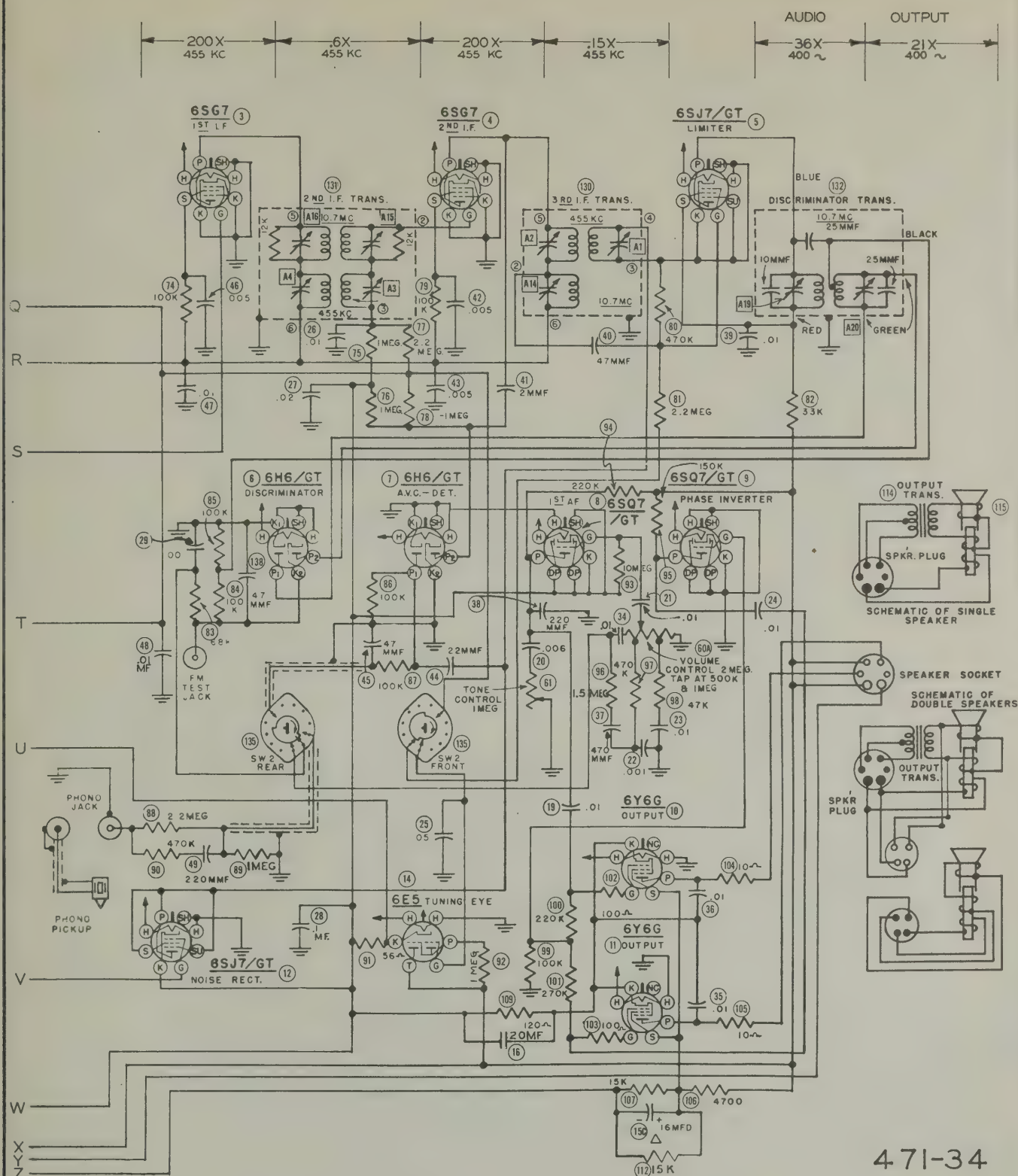
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		WESTING-HOUSE PART No.	REPLACEMENT DATA			IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT		SOLAR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
15A	40	450	V3302	DY-4031	EL-4241	HP9B39	Filter
16	48	300		M-25-25	TA-25	BR1635	Output Cath. Bypass
17	20	25		S-6-05	TC-15	BR252A	Line Bypass
18	05	600		S-6-05	TC-15	DR355	"
19	01	400		S-4-01	TC-11	DT351	Audio Coupling
20	006	600		S-6-006	TC-26	DT5D6	Tone Compensation
21	01	400		S-4-01	TC-11	DT451	"
22	001	600		S-6-001	TC-21	DT3D1	Tone Compensation
23	01	400		S-4-01	TC-11	DT451	"
24	01	400		S-4-01	TC-11	DT451	Audio Coupling
25	05	400		S-4-05	TC-15	DT455	AVC Filter
26	01	400		S-4-01	TC-11	DT451	"
27	02	400		S-4-02	TC-12	DT452	RF Bypass
28	1	600		S-4-1	TC-1	DT423	"
29	001	600		S-6-001	TC-21	DT6D1	RF Bypass Disc.
30	01	400		S-4-01	TC-11	DT451	RF Bypass Pwr. Supp.
31	01	400		S-4-01	TC-11	DT451	Conv. Screen Bypass
32	01	400		S-4-01	TC-11	DT451	AVC Filter
33	05	400		S-4-05	TC-15	DT455	Conv. Grid Bypass
34	01	400		S-4-01	TC-11	DT451	Audio Coupling
35	10000	300		WM. 3-11	1FM-11	1D3S1	Output Plate Bypass
36	35	10000		WM. 3-11	1FM-11	1D3S1	"
37	37	470		MO. 5-35	1FM-35	5WS75	Tone Compensation
38	220	500		MO. 5-32	1FM-32	5WS72	Auto Plate Bypass
39	40	10000		WM. 3-11	1FM-11	1D3S1	Lim. Screen Bypass
40	47	500		MO. 5-45	1FM-45	1D3S1	If Coupling FM
41	22	500		MO. 5-425	MS-42	5WSQ5	AVC Coupling
42	42	5000		MO. 5-25	1FM-25	1D3D5	2nd If Screen Bypass
43	43	5000		WM. 5-25	1FM-25	1D3D5	RF Bypass Pwr. Supp
44	44	22		MO. 5-425	MS-42	5WSQ2	If Coupling
45	47	500		MO. 5-45	1FM-45	5WSQ2	RF Bypass Diode
46	45	5000		WM. 5-25	1FM-25	1D3D5	1st If Screen Bypass
47	10000	300		WM. 3-11	1FM-11	1D3S1	RF Bypass Pwr. Supp
48	48	10000		MO. 3-11	1FM-11	1D3S1	AVC Filter
49	220	500		MO. 5-32	1FM-32	5WS72	Phone Tone Comp.
50	50	500		MO. 5-35	1FM-35	5WS75	Conv. Screen Bypass
51	470	500		MO. 5-31	1FM-31	1WSD1	Conv. Fil. Bypass
52	52	100					RF Coupling
53	53	3800					Fixed Fadder
54	54	50					Osc. Grid Capacitor
55	180	500					Fixed Fadder
56	2200	500					Fixed Trimmer
57	220	500		1FM-32	1FM-32	5WS72	RF Filament Bypass
58	57	2200		WM. 3-11	1FM-11	1D3S1	RF Screen Bypass
59	10000	300					RF Coupling Cer.
60	100	500		MO. 5-45	1FM-45	5WSQ5	Conv. Fil. Bypass
33	47	500					

CHASSIS—TOP VIEW

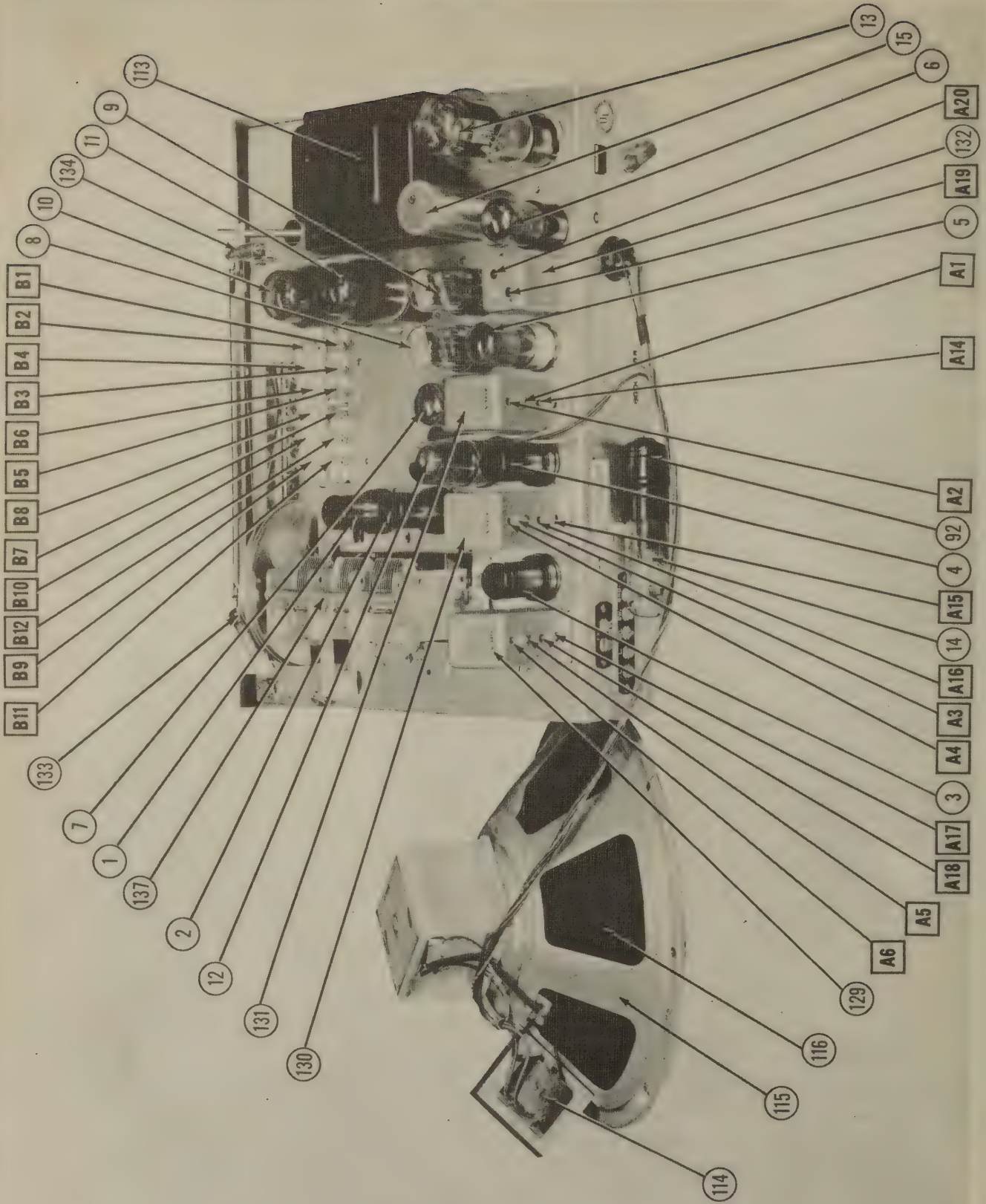






The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement, of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement. Noise rectifier tube is removed for stage gain measurements.

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued) TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	WESTINGHOUSE PART No.	STANCOR PART No.	
113	117V AC 620V CT 5.3V AC 6.9V AC @ 1.27A @ 175A @ 3.0A @ 6.1A			V-3295	P-6315*	*Add filter resistor in series with speaker field coil to reduce voltage to normal

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	SEC.	WESTINGHOUSE PART No.	THORDARIN PART No.	
114	500.3 Ω CT 1.8Ω CT	225Ω CT 280Ω CT	.7Ω .3Ω	A-3850	T22558#	#Drill one new mounting hole. Used in Model W-119. Used in Model W-117.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC Imp.		WESTINGHOUSE PART No.	JENSEN PART No.	
115A	22Ω	3Ω		V-3292 V-3612 V-3613		Used in Model W-119 {Two speakers used in parallel in Model W-117.
115B	11-3/5" 7-3/5"	1-1/4" 1"				NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	WESTINGHOUSE PART No.	MEISSNER PART No.	
117	Loop	Ω				
118	50 Ant. Coil	2.9Ω				
119	SW Ant.	Ω				
120	SW Ant.	.5Ω				
121	50 RF	Ω				
122	50 RF	3.5Ω				
123	50 RF	.3Ω				
124	50 RF	Ω				
125	50 Osc.	4.5Ω				
126	50 Osc.	.3Ω				
127	50 Osc.	Ω				
128	Conv. Osc.	2.1Ω				
129A	Grid Choke	Ω				
129B	1st IF 455KC	4.5Ω*				
130A	2nd " 455KC	5.3Ω*				
130B	" 107KC	Ω				
131A	3rd " 455KC	10Ω				
131B	" 107KC	.5Ω				
132	Disc. IF	.6 & .5				

* Includes both "IF" primaries, and both secondaries.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				WESTINGHOUSE PART No.	BEAD COLOR	
133	Bayonet	6-8	0.25		Blue	
134	Bayonet	6-8	0.25		Blue	Type 44 Type 44

PARTS LIST AND DESCRIPTIONS (Continued) MISCELLANEOUS

ITEM No.	PART NAME	WESTINGHOUSE PART No.	NOTES
135	Band Switch Pushbutton Assembly		
136	Tuning Gang		
137			

ALIGNMENT INSTRUCTIONS

To set dial pointer turn variable fully closed and set pointer at the last reference mark at the left end of the dial. Connect a 100KΩ resistor across the loop terminals. Set volume control at maximum volume and keep output of signal generator no higher than is necessary to obtain output reading. Use a vacuum tube voltmeter, preferably zero centered, as an output indicator for all FM adjustments. Before installing chassis in cabinet, place chassis near cabinet and connect loop. Tune in a weak signal near 1400KC and adjust A9 for maximum output. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD. High side to pin #1 of 68P7. Low side to chassis.	455KC	BC	High freq. end	"	Across voice coil	A1, A2, A3, A4, A5, A6.	Adjust for maximum output
200 MF. High side to ext. EC ant. Low side to chassis.	1500KC	"	"	1500KC	"	A7	"
200 MF. " " " "	"	"	"	"	"	A8, A9.	"
200 MF. " " " "	600KC	"	"	"	"	A10	Rock variable and adjust for maximum output. Repeat last three steps until no further improvement can be made.
400 OHMS High side to ext. SW ant. Low side to chassis.	18.0MC	SW	"	18.0MC	"	A11.	Adjust for maximum output
400 OHMS " " " "	15.0MC	"	"	"	"	A12, A13.	Rock variable and adjust for maximum output.
Do not attempt alignment of the FM band unless a vacuum tube voltmeter is available.							
.1 MFD. High side to pin #8 of 68P7. Low side to chassis.	10.7 MC (foatation off)	FM	"	108MC	VTM connected to pin #4 (grid) A15, A16, A17, A18. Limiter (5) A19.		Adjust for maximum output with minimum input from signal generator.
.1 MFD. High side to pin #4 (grid) of 2nd IF amp. (4). Low side to chassis.	"	"	"	"	VTM across disc. load resistor (85)	A19	Adjust for maximum output
.1 MFD. " " " "	"	"	"	"	VTM connected to test jack on rear of chassis near speaker plug.	A20	Adjust for zero output. Swing signal generator 75KC above and 75KC below IF freq. and record both readings. If not equal, repeat last two steps and check again. It may be necessary to adjust A20 slightly to get these readings equal. This adjustment is very critical as misadjustment will cause distortion of FM reception.
400 carbon ant. terminal. Low side to chassis.	102.0MC	"	"	102.0MC	VTM connected to pin #4 (grid) of 68J7 Limiter (5) and chassis	A21, A22, A23.	Adjust for maximum output in given order.

VOLTAGE READINGS

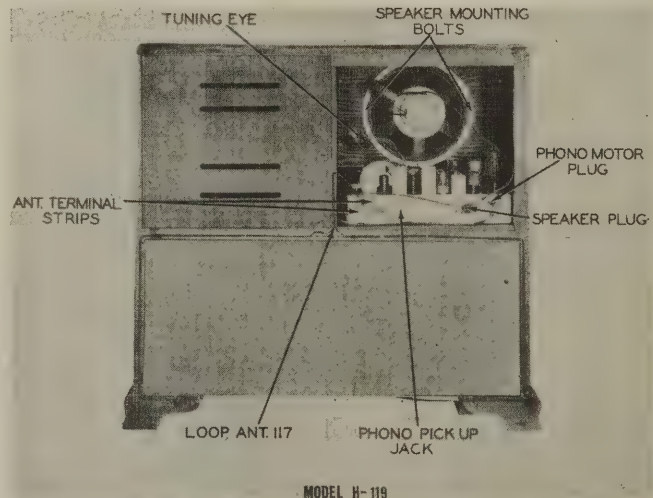
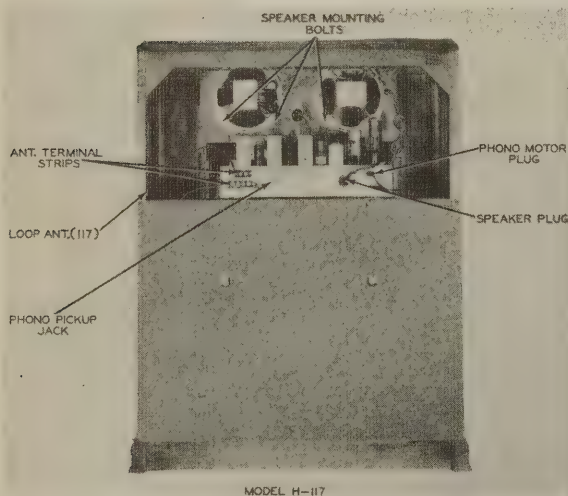
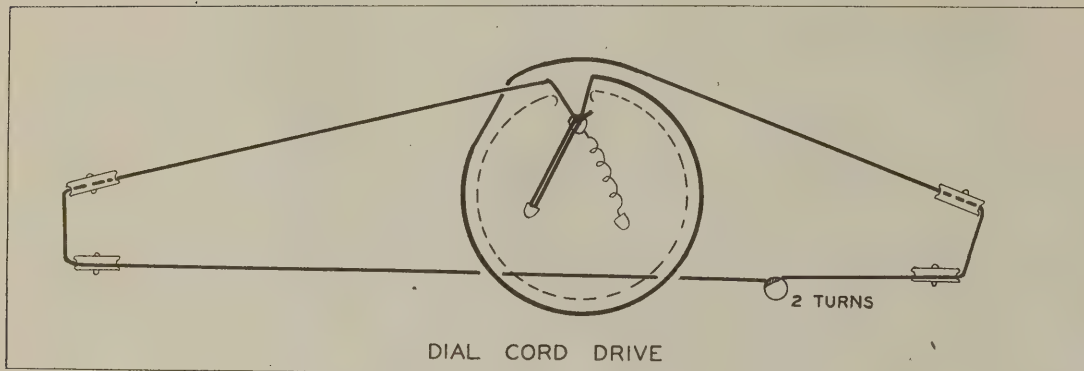
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0V.	0V.	0V.	-3V.DC	0V.	171V.DC	6.9V.AC	225V.DC
2	6SB7Y	0V.	0V.	285V.DC	102V.DC	75V.DC	1V.DC	6.9V.AC	0V.
3	6SG7	0V.	0V.	0V.	-3.4V.DC	0V.	132V.DC	6.9V.AC	282V.DC
4	6SG7	0V.	0V.	0V.	-8V.DC	0V.	117V.DC	6.9V.AC	280V.DC
5	6SJ7GT	0V.	0V.	0V.	-2V.DC	0V.	65V.DC	6.9V.AC	65V.DC
6	6H6GT	0V.	0V.	-5V.DC	0V.	-5V.DC	-5V.DC	6.9V.AC	0V.
7	6H6GT	0V.	0V.	-6V.DC	0V.	-7V.DC	280V.DC	6.9V.AC	0V.
8	6SQ7GT	0V.	-45V.DC	0V.	0V.	0V.	127V.DC	6.9V.AC	0V.
9	6SQ7GT	-3V.DC	-3.2V.DC	-3V.DC	-3V.DC	-3V.DC	107V.DC	6.9V.AC	0V.
10	6Y6G	0V.	0V.	270V.DC	145V.DC	-1.2V.DC	0V.	6.9V.AC	12V.DC
11	6Y6G	0V.	0V.	270V.DC	125V.DC	-1.5V.DC	0V.	6.9V.AC	12V.DC
12	6SJ7GT	0V.	0V.	0V.	-3.7V.DC	-3V.DC	0V.	6.9V.AC	0V.
13	5U4G	0V.	315V.DC	0V.	312V.AC	0V.	312V.AC	0V.	315V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0 Ω	0 Ω	0 Ω	3.5MEG.	0 Ω	48K Ω	1 Ω	18K Ω
2	6SB7Y	0 Ω	0 Ω	13K Ω	28K Ω	20K Ω	62 Ω	1 Ω	13K Ω
3	6SG7	0 Ω	0 Ω	0 Ω	1.2MEG.	0 Ω	110K Ω	1 Ω	13K Ω
4	6SG7	0 Ω	0 Ω	0 Ω	850K Ω	0 Ω	110K Ω	1 Ω	13K Ω
5	6SJ7GT	0 Ω	0 Ω	0 Ω	420K Ω	0 Ω	48K Ω	1 Ω	48K Ω
6	6H6GT	0 Ω	0 Ω	100K Ω	200K Ω	100K Ω	100K Ω	1 Ω	0 Ω
7	6H6GT	0 Ω	0 Ω	800K Ω	0 Ω	90K Ω	13K Ω	1 Ω	0 Ω
8	6SQ7GT	0 Ω	9MEG.	0 Ω	0 Ω	0 Ω	220K Ω	1 Ω	0 Ω
9	6SQ7GT	62 Ω	93K Ω	62 Ω	62 Ω	62 Ω	105K Ω	1 Ω	0 Ω
10	6Y6G	INF.	0 Ω	13K Ω	13K Ω	350K Ω	INF.	1 Ω	165 Ω
11	6Y6G	INF.	0 Ω	13K Ω	13K Ω	295K Ω	INF.	1 Ω	165 Ω
12	6SJ7GT	0 Ω	0 Ω	7 Ω	1.2MEG.	62 Ω	7 Ω	1 Ω	7 Ω
13	5U4G	INF.	13K Ω	INF.	90 Ω	INF.	92 Ω	INF.	13K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.



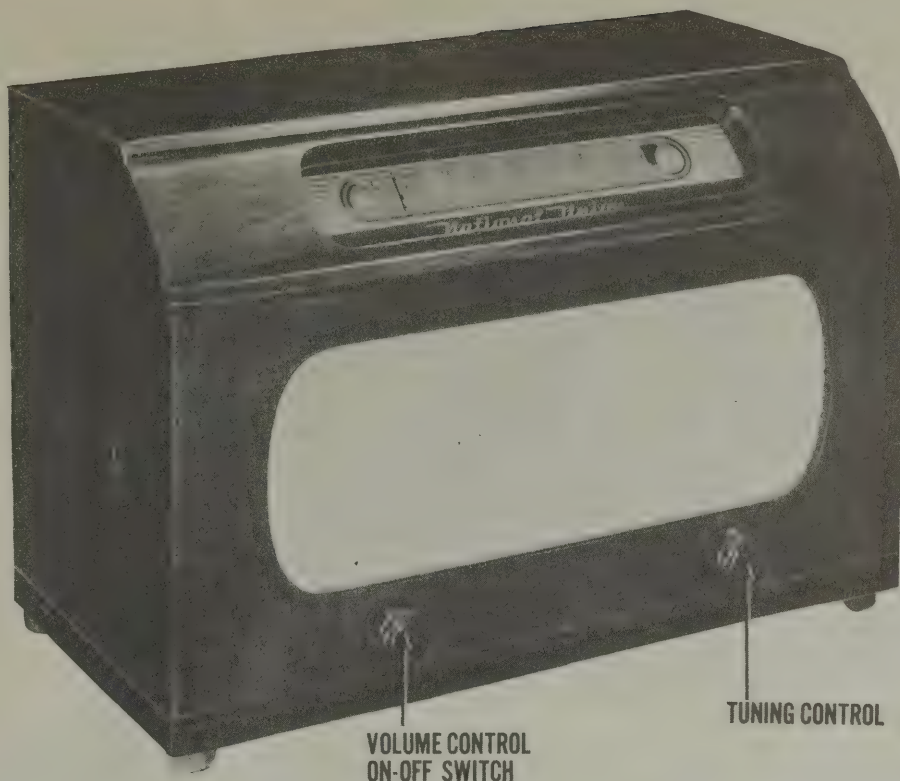
DISASSEMBLY INSTRUCTIONS

1. Remove the push-on type knobs and felt washers.
2. Disconnect the phono-motor plug from chassis.
3. Disconnect the phono-pickup plug from the chassis.
4. Remove set screw from speaker plug and disconnect speaker from chassis.
5. Remove tuning eye tube from bracket.
6. Remove the antenna lugged leads by loosening the set screws on back of chassis.
7. Remove the four hex head machine screws, washers and rubber spacers holding chassis to cabinet. Remove chassis.
8. Remove six hex head nuts and lock washers holding speaker to cabinet. Remove speaker.

PHOTOFACT* Folder

NATIONAL UNION
MODEL G-619
REPLACES FOLDER NO. 467-21

NATIONAL UNION
MODEL G-619
REPLACES FOLDER NO. 467-21



NATIONAL UNION MODEL G-619

NATIONAL UNION
MODEL G-619
REPLACES FOLDER NO. 467-21

TRADE NAME	National Union Model G-619 "Presentation"		
MANUFACTURER	National Union Radio Corp., Newark 2, New Jersey		
TYPE SET	AC - DC Superheterodyne - Self Contained Loop Antenna		
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.		
POWER SUPPLY	105-125 Volts AC-DC		
TUNING RANGE-BROADCAST	535-1620KC	RATING	.230 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS

To set pointer, turn variable fully open and set pointer at last punch mark at right end of dial. Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to sta- tor of rear sec- tion of variable. Low side to B-.	455KC	High freq. end (Variable fully open)	across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001 MFD. to reduce excessive hum modu- lation.
200 MMF.	High side to ext. ant. lead. Low side to chassis.	1620KC	"	"	A5	Adjust for maximum output.
200 MMF.	"	1400KC	Tune for maxi- mum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		NATIONAL PART No.	STANDARD REPLACEMENT		
1	RF Amp. Converter	12SK7GT	12SK7GT	6N	
2	IF Amp.	12SA7GT	12SA7GT	6L6	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	6N	
4	Power Output	35L6GT	35L6GT	6C	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		NATIONAL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	50 CAP.		2N521	DRN-2X50-150	EL-25	Filter - Red
7B	50					Line Filter
8	.1					35L6 Plate Bypass
9	.01					Audio Coupling
10	.005					IF Screen Bypass
11	.005					AVC Filter *
12	.05					AVC Filter
13A	.05					Line Isolating
14	.1					RF Bypass Pwr. Supp.
15	.1					AVC Filter *
16	.05					Grid Bypass
17	220					Fixed Trimmer
18	10					Osc. Grid Capacitor
19	100					RF Coupling
20	100					

*Used in early production

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		NATIONAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
21A	500KS					Volume Control
B	Start					Attach to 21A per instructions
C	Switch					

RESISTORS

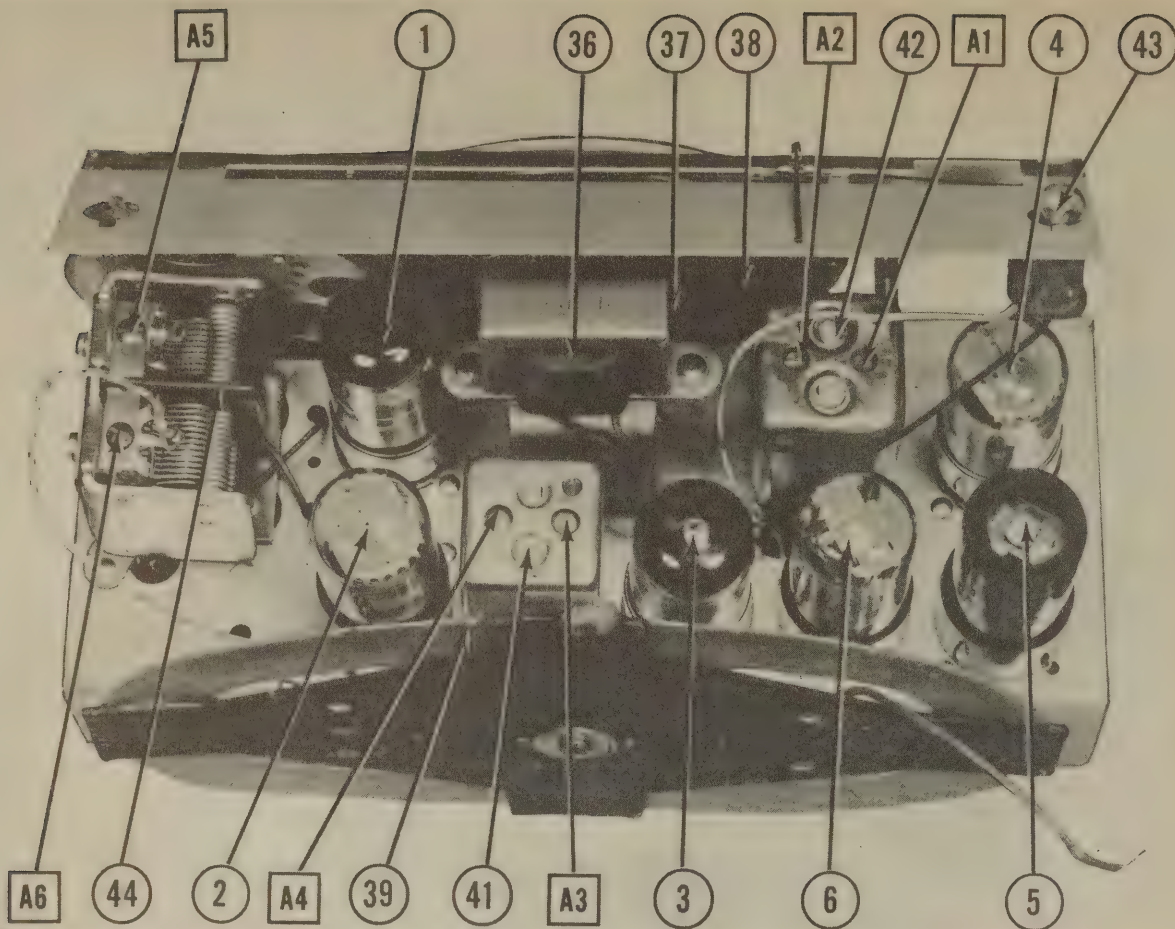
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		NATIONAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22	3300Ω					Or.-Or.-Red RF Plate Load
23	4700Ω					Y1.-Vi.-Red Mixer Grid
24	10KΩ					Br.-Blk.-Or. Oscillator Grid
25	10KΩ					Br.-Blk.-Or. Oscillator Grid
26	100KΩ					Br.-Blk.-Red IF Decoupling
27	2.2 Meg.					BTS-2.2 Meg. Red-Grn. AVC Network
28	3.9 Meg.					BTS-3.9 Meg. Or.-White-Grn. 1st AF Grid - See Note 1
29	220KΩ					BTS-10 Meg. Red-Blk.-Blue 1st AF Grid - See Note 2
30	270KΩ					Red-Red-Yl. 1st AF Plate Load
31	47KΩ					Red-Vi.-Yl. Output Grid
32	1200Ω					Y1.-Vi.-Blk. Output Cathode
33	33Ω					Or.-Red-Red Filter
34	220KΩ					Or.-Or.-Blk. Surge Limiter
35	150Ω					Red-Red-Yl. Line Isolating
						Br.-Grn.-Br. Pilot Light Shunt-See Note 3

Note 1 - Used in early production

Note 2 - Used in later production

Note 3 - Not used in all models

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	NATIONAL UNION PART No.	STANCOR PART No.	
36	1600Ω	3.1Ω	1402	A-3575	T-25545

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		NATIONAL UNION PART No.	JENSEN PART No.	
37	FIELD	VC IMP.	ST-106	
38	4-5/4"	3.1Ω	Mod. 16-W	

NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT

R F COILS

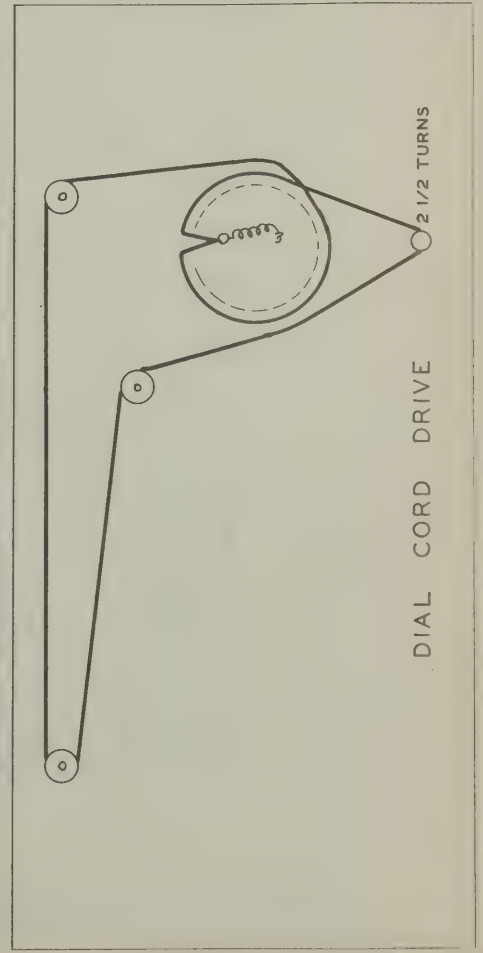
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	NATIONAL UNION PART No.	WEISSNER PART No.	
39	Loop ant.	0Ω	1.1Ω	LL-11		
40	Osc. coil	16.5Ω	5.5Ω	AL02	14-1040	
41	Input IF	15Ω	15Ω	T12-1	16-8658	
42	Output IF			T12-3	16-8670	

DIAL LIGHT

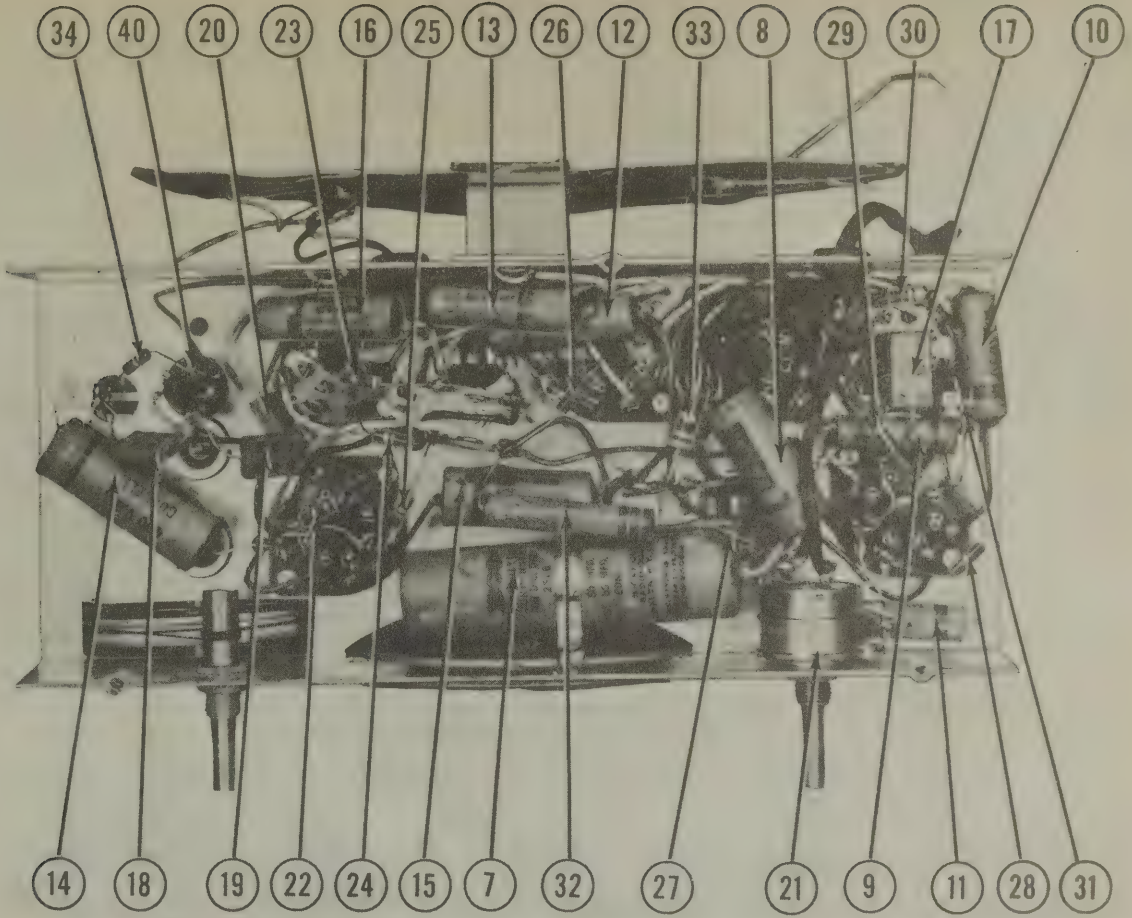
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	NATIONAL UNION PART No.	
43	Bayonet	6-8	0.2	White		Type 51

MISCELLANEOUS

ITEM No.	PART NAME	NATIONAL UNION PART No.	NOTES
44	Tuning Cap.		2 Gang Variable Cap.



CHASSIS—BOTTOM VIEW





TOP VIEW

SEEBURG "K"—GENERAL

This changer is designed to play and automatically change up to fourteen 10-inch or ten 12-inch records, not intermixed. The last record will be repeated until the changer is turned off. Power supply is 105-125 volts A.C., 60 C.P.S.

MANUFACTURED BY J. P. SEEBURG CORP., 1500-24 DAYTON STREET, CHICAGO 22, ILLINOIS

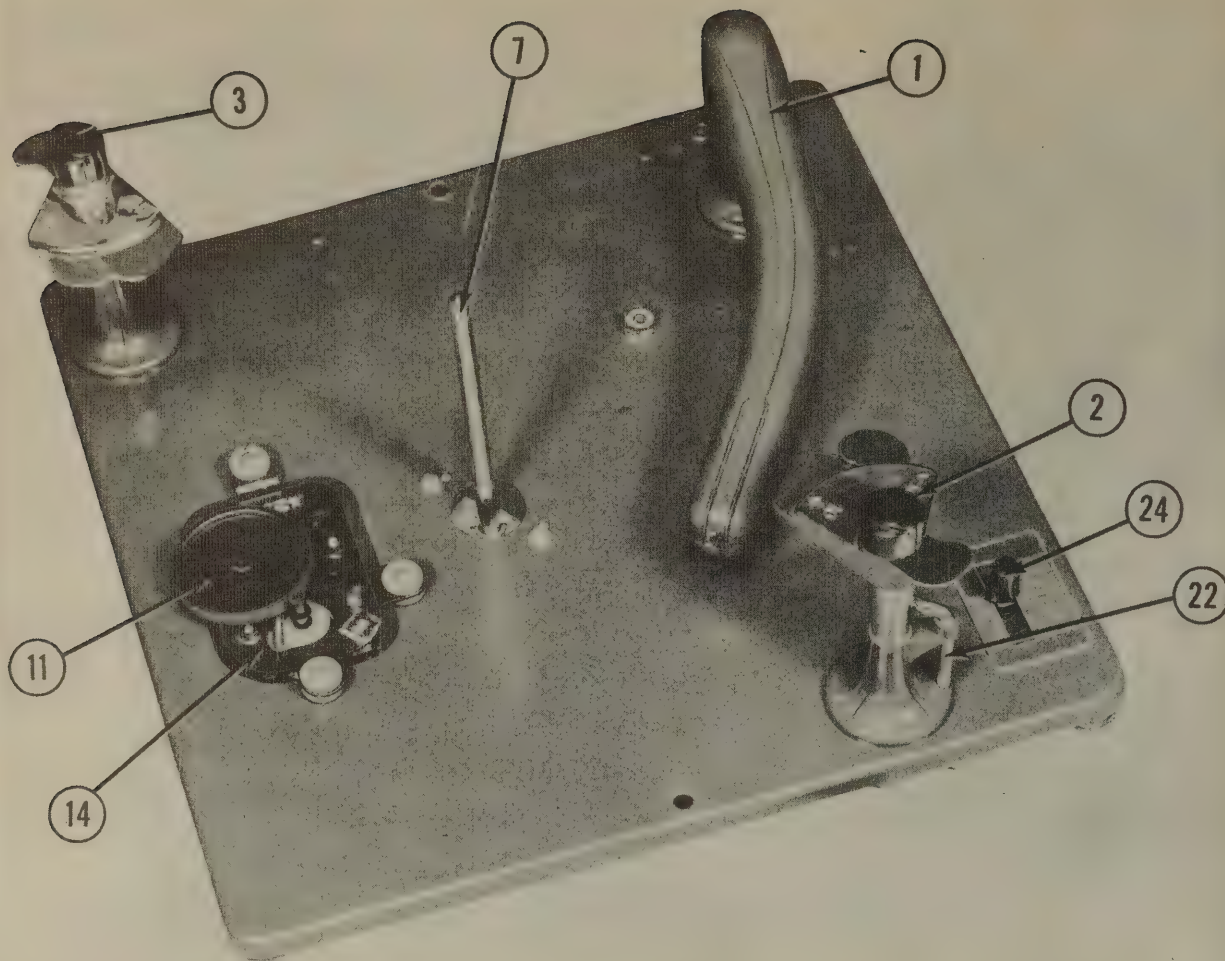
The following manufacturers have used this record changer in Postwar receivers:

COMPANY	ADDRESS	THEIR NUMBER
Crosley Corporation	1329 Arlington Street, Cincinnati, Ohio	D-134945
Electro-Tone Corp.	221 Hudson Street, Hoboken, New Jersey	414
Espey Mfg. Co.	528 East 72nd Street, New York, New York	28001
Garod Radio Corp.	70 Washington Street, Brooklyn, New York	C-36, 101-1 & 2
General Electric Co.	Bridgeport, Connecticut	7-751173
General Tel. & Radio Co.	2701 Lehmann Court, Chicago, Illinois	
Hoffman Radio Corp.	3761 South Hill Street, Los Angeles, California	K-228510
Magnavox Co.	2131 Bueter Road, Fort Wayne, Indiana	520517
Magnavox Co.	2131 Bueter Road, Fort Wayne, Indiana	530517-G-3
Majestic Radio & Tel. Corp.	St. Charles, Illinois	21-2
Olympic Radio & Tel. Co., Inc.	3101-19 38th Avenue, Long Island City, New York	RX-227
Plaza Mfg. Co., Inc.	869 Broadway, New York, New York	
Rogers-Majestic Radio Corp.	622-40 Fleet Street, West, Montreal, Quebec, Canada	090-011-2
Rogers-Majestic Radio Corp.	622-40 Fleet Street, West, Montreal, Quebec, Canada	090-015
Rogers-Majestic Radio Corp.	622-40 Fleet Street, West, Montreal, Quebec, Canada	090-016
Rogers-Majestic Radio Corp.	622-40 Fleet Street, West, Montreal, Quebec, Canada	090-023
Sparks-Withington Co.	2400 E. Ganson Street, Jackson, Michigan	PD-93100
Stromberg-Carlson Co.	100 Carlson Road, Rochester, New York	B-22171
Tech-Master Products Co.	123 Prince Street, New York, New York	37.8
Templestone Radio Mfg. Corp.	New London, Connecticut	
Union Electronics Corp.	38-01 Queens Boulevard, Long Island City, New York	119-2
U. S. Television Mfg. Corp.	3 West 61st Street, New York, New York	PD-93000
Wells-Gardner & Co.	2701 North Kildare Avenue, Chicago, Illinois	28A119

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TOP VIEW WITHOUT TURNTABLE

MANUAL OPERATION

Odd-sized or warped records or home recordings should be played manually.

1. Turn selector knobs as for unloading.
2. Place record on turntable.
3. Move the control knob to "manual" position.
4. Place the pickup arm on the record.
5. When the record has finished playing, the pickup arm may be returned to its rest by hand.

Placing the control knob in "manual" position moves the arm (30) into position near the clutch engagement lever (58A), preventing this lever from falling to start the change cycle.

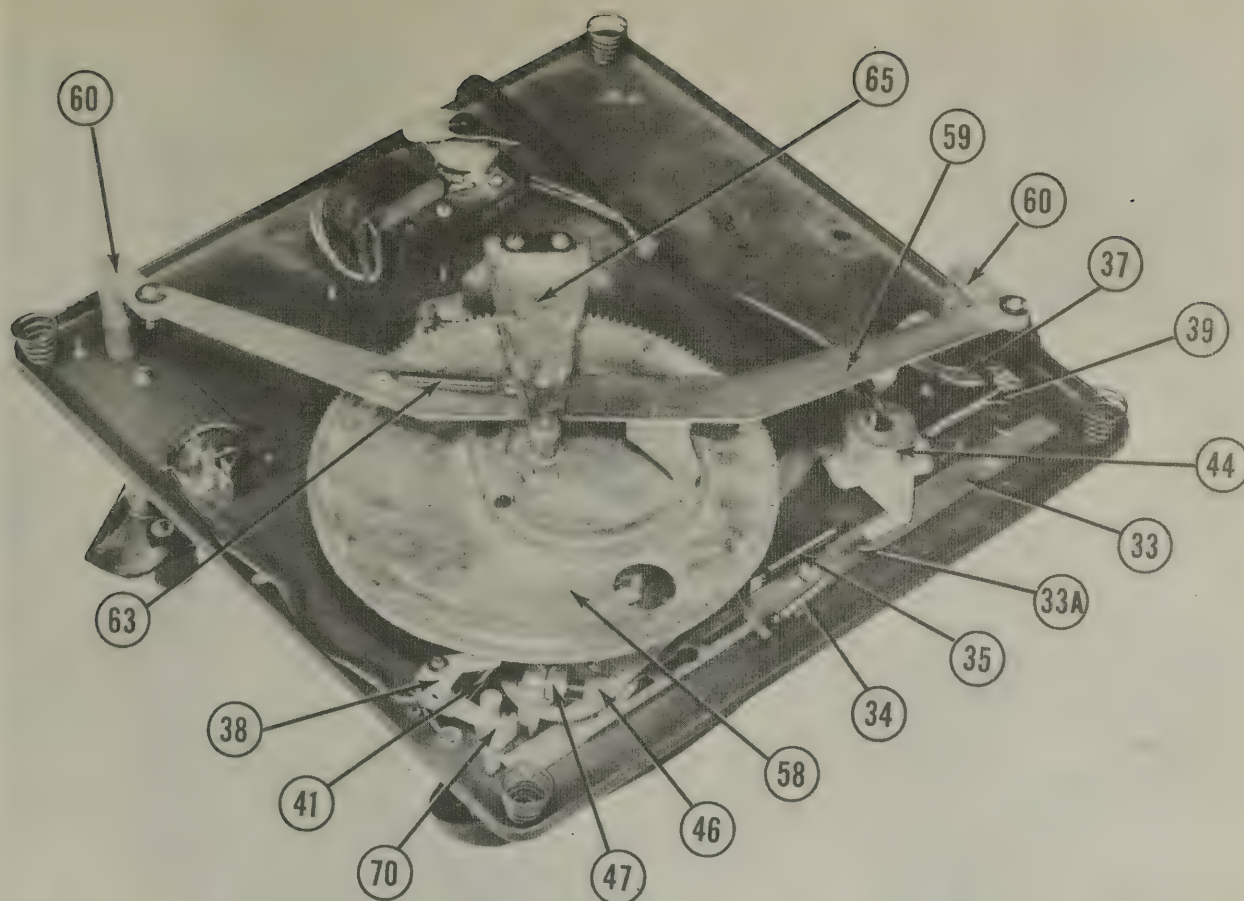
AUTOMATIC OPERATION

1. Turn the selector knobs for the correct size records.
2. Place up to fourteen 10-inch or ten 12-inch records on the selector knobs. Do not intermix sizes.

3. Move the control button to "Reject" position and then release it. The button will return to "Auto" position. The changer will now play the entire stack and repeat the last record until the switch is moved to "off."
4. To reject any record, move the control button to "Reject" and release it.
5. To shut off the changer move the control knob to "off," then lift the tone arm manually and return it to its rest position.
6. To unload records, lift the selector arms and turn them so they will clear the records.

LUBRICATION

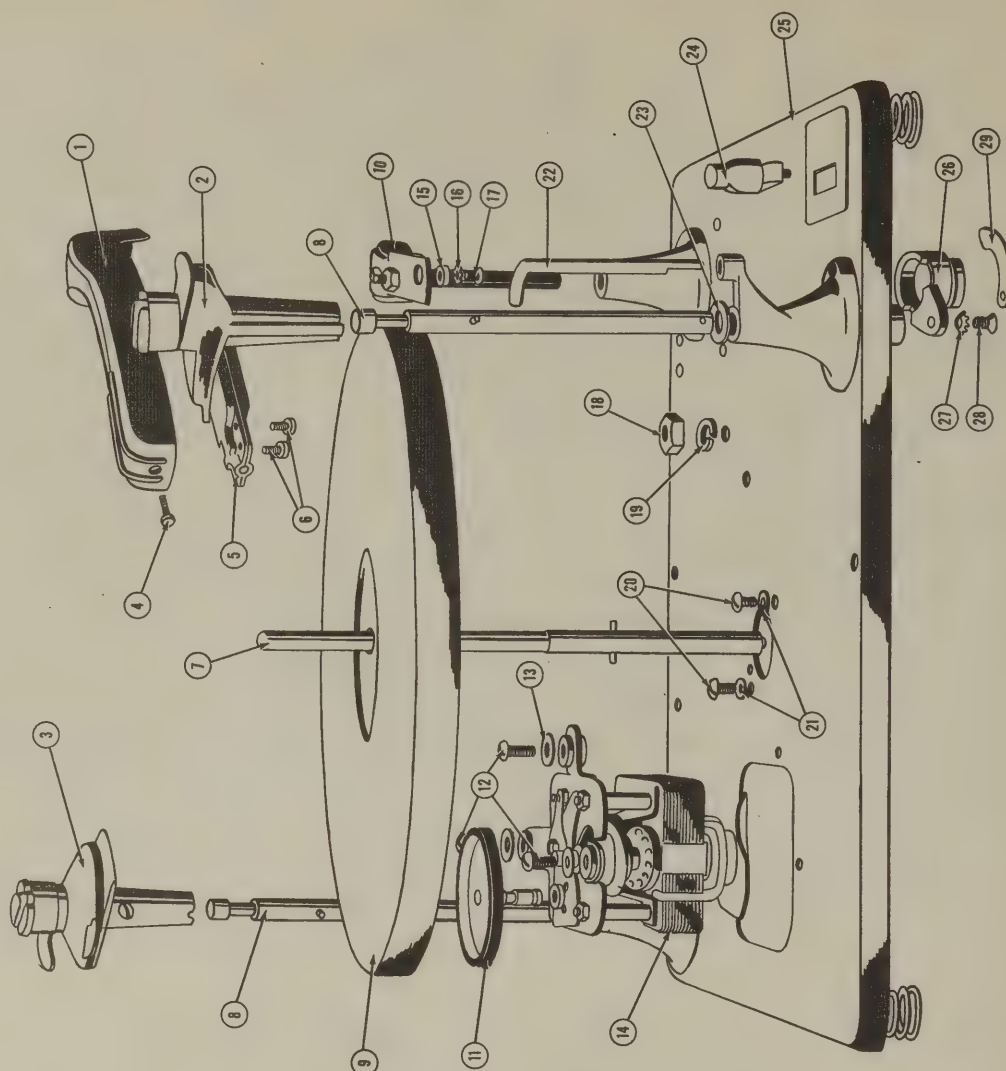
Lubrication applied at the time of manufacture is usually sufficient for several years. If lubrication becomes necessary, use a light grease such as Lubriplate, or its equivalent, on cam surfaces and gear teeth. Use light machine oil on all shafts and on the spindle. Do not oil the clutch engagement lever as it is designed to run dry. Do not allow oil or grease to touch rubber parts.



BOTTOM VIEW

THE CHANGE CYCLE

1. As the control slide (33) moves from "off" past "auto," the slot (33A) turns the power switch (44) on.
2. When the control slide reaches "Reject," the changer is tripped as follows: The control slide, working through the connecting link (29), moves the reject slide (30) toward the spindle. The reject slide strikes the stud on the trip lever (56) causing the trip lever to move and allow the clutch engagement lever (58A) to fall.
3. When the clutch engagement lever falls, lug 66A on the rotating pinion (66) strikes it, thus moving the main cam (58) enough to allow its teeth to mesh with the rotating pinion.
4. As the main cam rotates, the tone arm lift pin (50) rides up the inclined surface of the main cam, thus raising the pickup arm from the record.
5. The bottom surface of the main cam (58) actuates the drive link (59), causing the selector arms to rotate a quarter turn to release a new record. The motion of the drive link is transmitted to the selector arms by means of the drive cranks (60).
6. The clutch engagement lever (58A) is reset with the trip lever (56) by means of the tone-arm lever (47) which is locked in position by tone-arm latch lever 38.
7. As surface 58B of the main cam passes the tone-arm latch lever (38), tone-arm lever 47 is released. The stud on the tone-arm lever then follows the receding cam (58C).
8. Spring pressure from the tone-arm locator (46) moves the tone-arm lever (47), and thus the tone arm, toward the record. The point at which the tone-arm locator stops is determined by the setting of the selector arms.
9. The stud on the tone-arm lever (47) contacts the retard lever (54). Thus the tone-arm lever is held in position between the retard lever and the tone-arm locator.
10. The tone-arm lift pin (50) rides back down the inclined surface of the main cam, lowering the pickup to the record. After the needle touches the record, the booster spring (45) exerts a slight pressure to move the needle into the starting groove.
11. As the needle enters the groove, main cam (58) completes its revolution, and is locked in open-tooth position by the drive-gear stop lever (65A).



AUTOMATIC TRIP

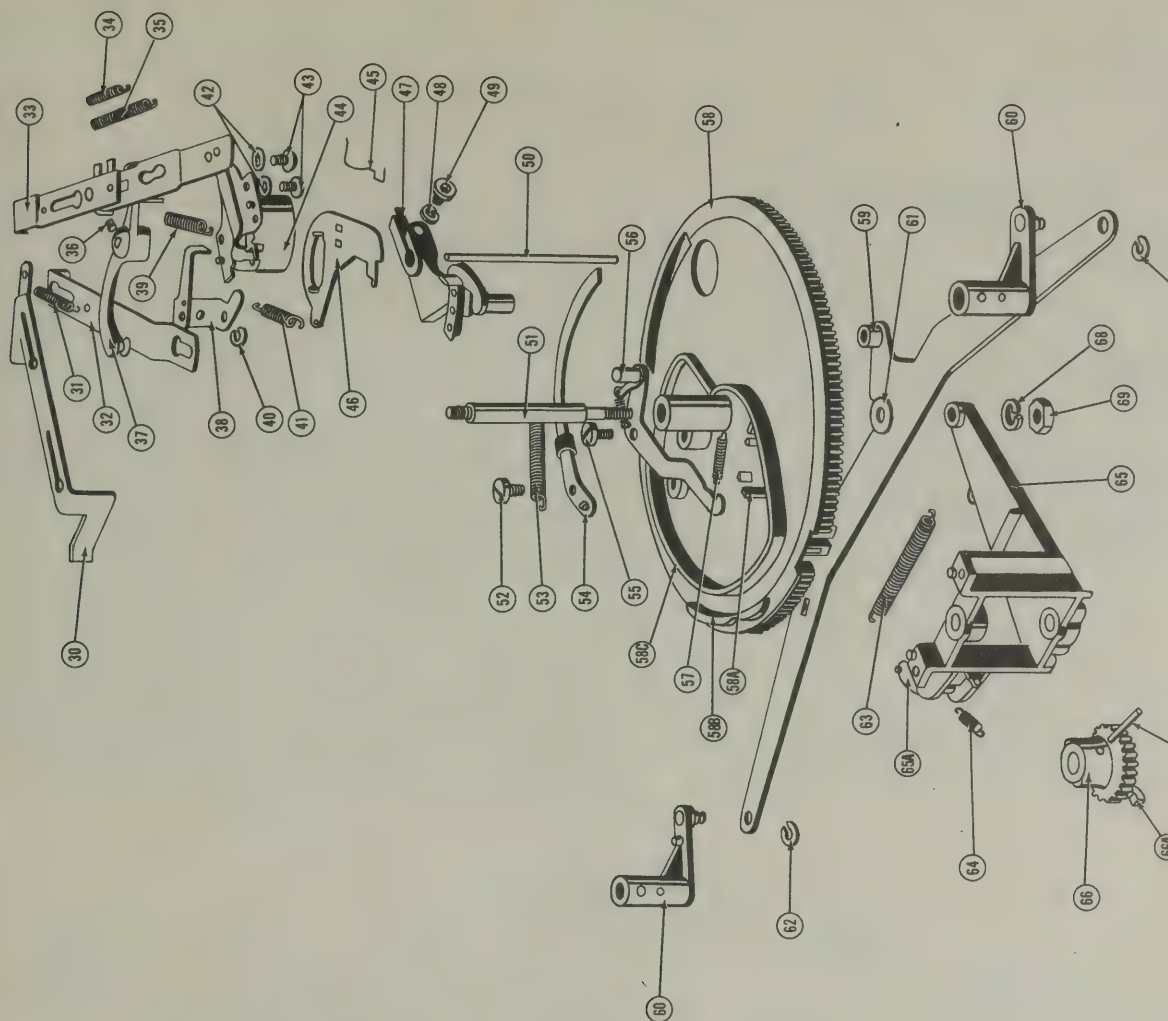
At the end of a record, the change cycle is started by either of two actions releasing the clutch engagement lever.

1. Minimum diameter cut-off occurs when the trip shoe attached to the tone-arm lever strikes the trip lever (56).
2. Eccentric groove cut-off occurs when the tone arm is moved away from the spindle. The sawtooth edge of the trip plate engages and moves the trip dog on trip lever 56. Either of

these actions allows the clutch engagement lever to fall, starting a new cycle.

12-INCH RESET

When the selector arms are turned to the 12-inch position, the rib on selector arm (2) is in such a position as to strike the 12-inch reset rod (22) during the change cycle. This movement is transferred through the 12-inch reset lever (37) to the slide (32). The position of this slide determines which part of the tone arm locator (46) will be engaged, and thus determines how far in the tone arm locator will move.



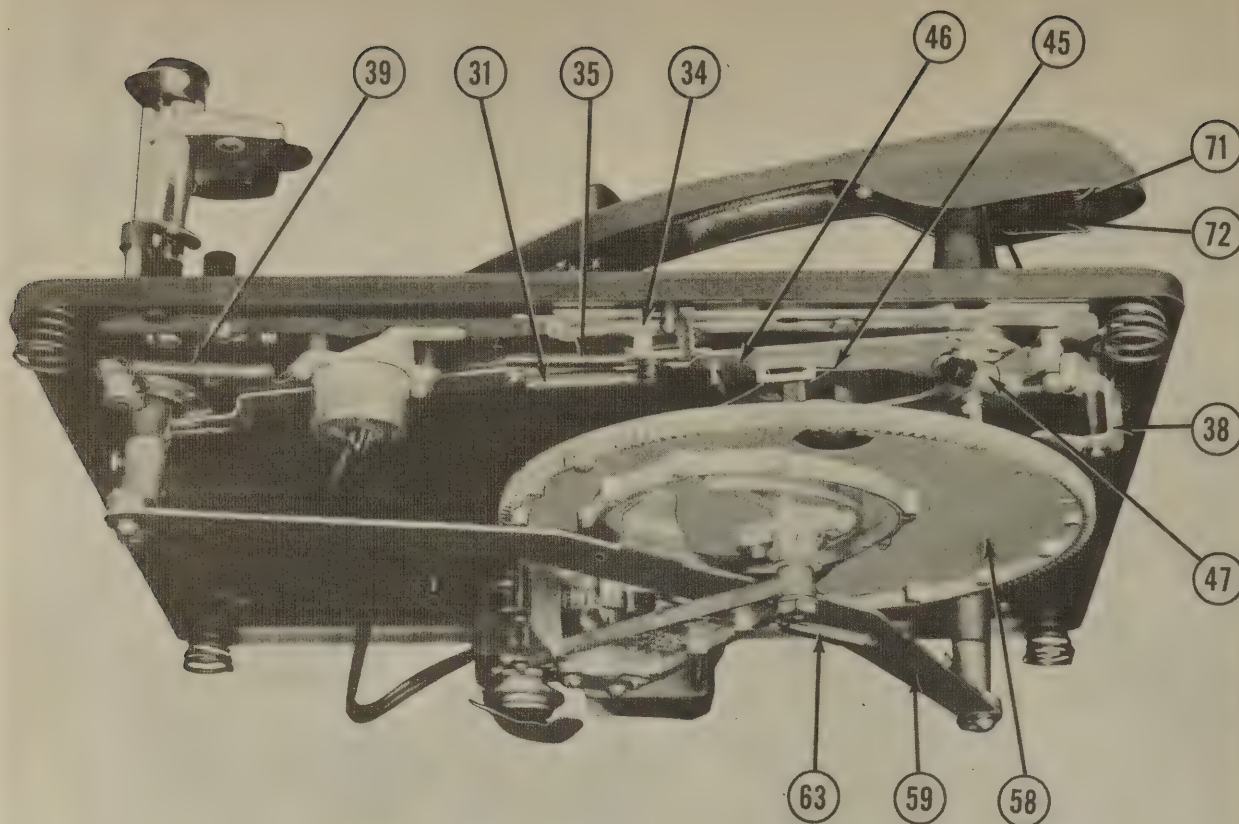
MANUAL OPERATION

When the control button is moved to "Man," four conditions are set up.

1. The motor switch is turned on.
2. The end of the control slide (33), acting through the manual latch lock (70), partially disengages the tone-arm latch lever (38) from its locked position. It now serves as a

detent for the tone arm while in rest position. This prevents movement due to accidental bumping.

3. The manual lockout on the control slide engages the tone arm locator, preventing it from moving in.
4. The reject slide (30) moves into position so that the clutch engagement lever is held in place, preventing tripping.



SIDE VIEW

ADJUSTMENTS

SELECTOR ARM AND BLADE

The leading edge of the blades must be smoothly rounded and well polished. The blades must be very free in their mounting so they will return to their normal position by their own weight. The selector arms must be parallel with each other, and synchronized so the record will drop evenly from both arms.

If blade adjustment is necessary, place a 10-inch record of average thickness (.074") on the selector arms and rotate the turntable by hand until the selector blades contact the record. The blade must rise after it first contacts the edge of the record. This rising cam action results whenever pressure is applied to the leading edge of the blade. The blade may be adjusted by bending, using pliers with tapelined jaws. The height to which the blades are set must be less than the minimum record thickness, otherwise the changer will attempt to change two records at the same time due to the cam action which always operates in an up direction.

When necessary, make the same adjustment for 12-inch records using a standard 12-inch record (approximately .090").

INCORRECT TONE-ARM INDEXING

Insufficient tension in the locator spring (41) will result in erratic or incorrect pickup arm landing since the locator will not seat in the fixed 10-inch or 12-inch indexing position. It will also result in a jerky action of the tone arm, since the tone-arm lever will not accurately follow the cam surface of the large gear.

Excessive spring tension will result in a stiff, heavily loaded "feel" as the pickup arm is moved to its rest position. It may also result in a stiff action of the control slide and cause increased wear on moving parts.

TONE-ARM POSITIONING

1. Set the control knob to "off" (power plug out).
2. Place a 10-inch record on the turntable and set the selector arms for 10 inch.

3. Loosen the Allen socket cap screw (49) just enough to allow the tone-arm lever to still hold its position.
4. Line up the outer edge of the tone arm evenly with the panel edge. This gives the tone arm an approximate setting.
5. Push the control knob to reject and release it. Rotate the turntable clockwise and note where the needle first touches the record. This should be about one-eighth inch from the edge. Corrections may be made by slipping the tone-arm lever slightly. Be sure there is sufficient vertical clearance in the tone-arm shaft to prevent binding before tightening the set screw.
6. Check with a 12-inch record. If the 10-inch setting was made correctly, the 12-inch setting should be automatically correct.

TONE-ARM HEIGHT

The tone-arm height is correct when there is an approximate 1/16" clearance between it and the bottom of a 10-inch record on the selector arms. This may be adjusted by the tone-arm adjusting screw (17).

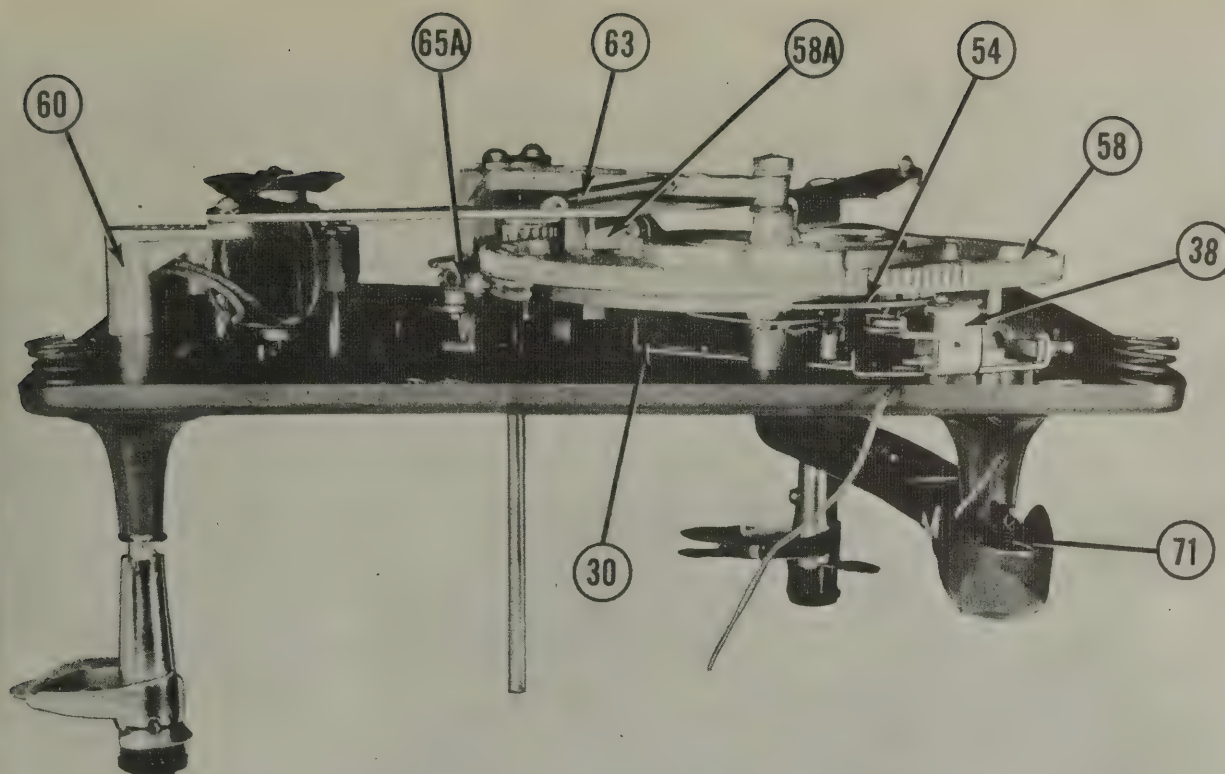
The down position of the arm is controlled by a lug on the front of the hinge assembly. This should be adjusted to allow the bottom edge of the pickup arm and cartridge to clear the turntable by about 1/16".

NEEDLE PRESSURE

Needle pressure is controlled by the counter-balance spring (71). The pressure may be varied by moving the counter-balance adjusting slide (72). The needle pressure should be not less than 1 1/8 oz.

MINIMUM DIAMETER TRIP

The trip shoe fastened to the tone-arm lever (47) may be adjusted for tripping on records without an eccentric groove. The adjustment should be made so that the changer trips when the needle is 1 7/8" from the record center.



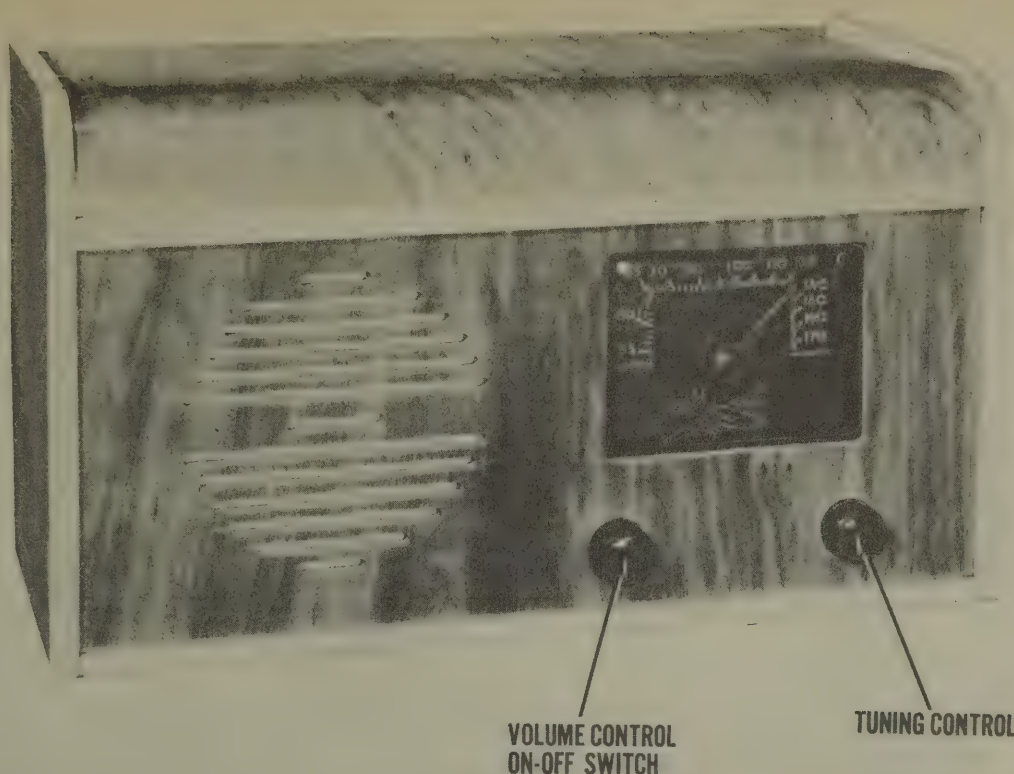
REAR VIEW

TROUBLES

SYMPTOMS	CAUSE	REMEDY
Motor failure.	<ol style="list-style-type: none"> 1. Broken wire or defective plug. 2. Faulty switch. 3. Faulty linkage between switch and control slide. 4. Motor coils open. 	<ol style="list-style-type: none"> 1. Replace switch. 1. Replace motor.
Motor overheats or is sluggish.	<ol style="list-style-type: none"> 1. Poor lubrication. 2. Incorrect line voltage or frequency. 3. Defective winding. 4. Mechanical binding. 	<ol style="list-style-type: none"> 1. Oil motor with light machine oil. 1. If necessary, auto-transformer may be used. Special motor necessary for frequencies other than 60 c.p.s. 1. Replace motor. 1. Check changer for mechanical binds.
Rumble in reproduction.	<ol style="list-style-type: none"> 1. Worn rubber rim on idler wheel. 2. Changer not properly floated on motor board. 3. Spindle binding. 	<ol style="list-style-type: none"> 1. Replace idler wheel (11). 1. Be sure shipping bolts have been removed. 1. Oil sparingly if necessary.
Record jams.	<ol style="list-style-type: none"> 1. Separator blades. 2. Record odd-sized or damaged. 	<ol style="list-style-type: none"> 1. Adjust according to paragraph on selector arm adjustment. 1. Play in "man" position.
Record drops from one side only.	<ol style="list-style-type: none"> 1. Center hole too large. 2. Selector arms out of adjustment. 	<ol style="list-style-type: none"> 1. Play in "man" position. 1. Adjust according to paragraph on selector arm adjustment.
Records drop more than one at a time.		<ol style="list-style-type: none"> 1. Check adjustment of selector blades.
Needle lands incorrectly.		<ol style="list-style-type: none"> 1. Check adjustment of set-down point. 2. Retard lever spring (53) tension incorrect. 3. Locator spring (41) tension incorrect.
Needle fails to feed in.	<ol style="list-style-type: none"> 1. Booster spring. 	<ol style="list-style-type: none"> 1. Bend booster spring (45) to provide more tension.
Needle slides across first few grooves.	<ol style="list-style-type: none"> 1. Booster spring. 	<ol style="list-style-type: none"> 1. Bend booster spring (45) to provide less tension.
Changer fails to trip.	<ol style="list-style-type: none"> 1. Trip shoe out of adjustment. 2. Tone arm lead wire. 3. Clutch engagement lever not unlatching. 4. Trip lever binding. 	<ol style="list-style-type: none"> 1. Adjust to trip at $1\frac{1}{8}$" from center of record. 1. Be sure lead wire has enough slack. 1. Clean, but do not lubricate. 1. Check to see that trip lever moves freely.
Changer trips continually.	<ol style="list-style-type: none"> 1. Clutch engagement lever fails to latch. 2. Control knob binds in "Reject" position. 3. Stop lever fails to detent. 	<ol style="list-style-type: none"> 1. Check trip lever for bind or for weak spring. 1. Check control slide and associated parts. 1. Check stop lever spring (64).

PARTS LIST

Ref. No.	Seeburg Part Number	DESCRIPTION	Ref. No.	Seeburg Part Number	DESCRIPTION
1	K228260	Tone Arm	38	K228125	Tone arm latch lever
2	K228197 K228195 K228192 K228196	Selector arm No. 2 and blade assby. (10") Selector blade (12") Selector arm knob Selector arm No. 2 complete	39	B27093	12" Reset lever spring
3	K228189 K228195 K228192	Selector arm No. 1 and blade assby. (10") Selector blade (12") Selector arm knob	40	J22021	Small "C" washer
4	K228219	Needle screw	41	C29130	Tone arm locator and latch spring
5	K228221 K228413	Pickup cartridge (for standard models) Pickup lead	42		Lock washer
6	71096	1/4" x 4-36 oval fil.H.M.S.	43		R.H.M.S. 6-32 x 1/4"
7	K228164	Turntable spindle assembly	44	K228213 K228133 K228243 K228244	Power switch assembly Switch plate assembly Switch cover Insulating disc
8	K228178 K228180	Selector shaft assembly Pin	45	H20129	Booster spring
9	J22078	Turntable assembly	46	K228123	Tone arm locator assembly
10	K228144 K228145	Tone arm hinge assembly Hinge bracket and shaft assembly	47	K228152 K228156	Tone arm lever assembly Trip shoe
11	J22143 K228256	Idler wheel used with motor K228131 Idler wheel used with motor K228250	48		Lock washer
12	71502	5/8" x 6-32 B.H.M.S.	49	75047	Allen socket head machine screw 5/8" x 10-32
13	72138	1/2 O.D. x 9/64 I.D. x .015 washer	50	K228199	Tone arm lift pin
14	K228131 K228250	Motor Motor	51	K228168	Drive gear shaft
15	K228217	Washer	52	B27088	Retard lever screw
16		Lock washer	53	B27067	Retard lever spring
17	K228238	Tone arm adjusting screw	54	K228176 K228175 72040	Tone arm retard lever Retard lever bumper (rubber) Retard lever spring washer
18	70069	7/16" x 12-24 nut	55	K228214	Trip lever screw
19	73087	Lock washer	56	K228172 K228203 B27063 K228202	Trip lever Trip lever bumper (rubber) Trip dog spring Trip dog bumper (rubber)
20		R.H.M.S. 8-32 x 5/16"	57	B27092	Trip lever spring
21		Lock washer	58	K228170	Drive gear
22	K228130	12" reset rod	58A	K228171	Clutch engagement lever
23	72117	Washer 9/16" O.D. x .316 I.D. x .032	59	K228184 K228187	Drive link assembly Drive link roller
24	K228121 K228210	Control button Control escutcheon	60	K228181	Drive crank assembly
25		Mounting base	61	K228177	.032" Fibre thrust washer
26	K228122	Tone arm locator hub	62	H20065	"C" washer
27	73084	Lock washer	63	K228201	Drive link spring
28	71018	1/4" x 6-32 F.H.M.S.	64	B27048	Stop lever spring
29	K228120	Connecting link	65	K228158	Spindle and housing assembly
30	K228119	Reject slide	65A	K228162 K228211	Drive gear stop lever assembly Stop lever pivot pin
31	J22121	12" Reset slide spring	66	K228167	Pinion gear
32	K228126	12" Reset slide	67	80036	Taper pin 3/4 x 3/0
33	K228114	Manual lockout assembly (control side)	68	73087	Lock washer
34	J22058	Manual lockout spring (outer)	69	70069	12-24 x 7/16" nut
35	K228118	Manual lockout spring (inner)	70	K228111	Manual latch lock
36	75042	Set screw, Allen head, 10-32 x 1/4" cup point	71	K228099	Counter-balance spring
37	K228128 K228127	12" Reset lever Reset lever assembly	72	K228150	Counter-balance adjusting slide



AERMOTIVE MODEL 181-AD

TRADE NAME	Aermotive Model 181-AD		
MANUFACTURER	Aermotive Equipment Corp., 1632-8 Central St., Kansas City, Mo. (Formerly Air Communications, Inc.)		
TYPE SET	AC-DC Superheterodyne Receiver - Self Contained Loop Antenna		
TUBES (EIGHT)	Types, 14A7 RF Amp., 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, (2) 50A5 Power Output, (2) 35Z5GT Rectifier.		
POWER SUPPLY	117 Volts AC-DC		
TUNING RANGE—BROADCAST	540-1700KC	RATING	.505 Amps. @ 117VAC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and adjust pointer to last reference mark at low freq. end of dial. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and chassis. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of front section of variable. Low side to chassis.	460KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1600KC	1600KC	"	A5	Adjust for maximum output.
200MMFD	"	1400KC	Tune for maximum output.	"	A6,A7.	" " " "
200MMFD	"	600KC	"	"	A8	Rock variable and adjust for maximum output.

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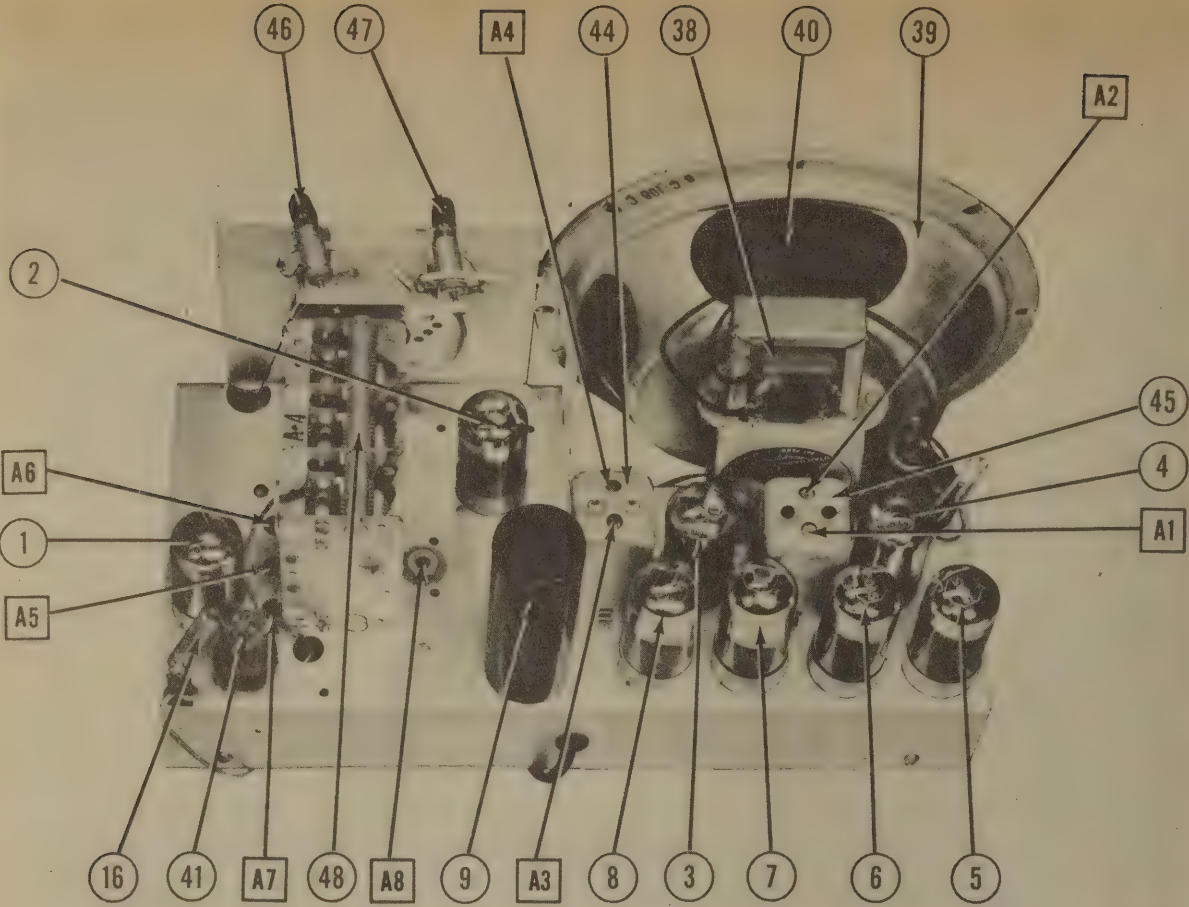
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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW



ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		AERMOTIVE PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	1447	1447	8V	
2	Converter	1447	1447	8AL	
3	IF Amp.	1447	1447	8V	
4	Def.-AVC-AF	1456	1456	8W	
5	Power Output	50A5	50A5	6AA	
6	Power Output	50A5	50A5	6AA	
7	Rectifier	35Y4	35Y4	5AL	
8	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		AERMOTIVE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
9A	40 CAP.		DY-3x40-150	EL-340	AF888D	Filter - Red
9B	150					" - Yellow
9C	10					Line Filter
10	.05	S-4-05		TC-15	484-05	TP426 Audio Coupling
11	.01	S-4-01		TC-11	484-01	TP421 Audio Plate Decoupling
12	.05	S-4-05		TC-15	484-05	TP426 Audio Coupling
13	.01	S-4-01		TC-11	484-01	TP421 IF Cath. Bypass
14	.05	S-4-05		TC-15	484-05	TP426 AVC Filter
15	.05	S-4-05		TC-15	484-05	TP426 Ant. Coupling
16	.01	S-4-01		TC-11	484-01	TP421 IF Bypass Diode
17	250	10.5-325		1FM-325	5M5T25	MC240 IF Bypass Vol. Cont.
18	250	10.5-325		1FM-325	5M5T25	MC240 Osc. Grid Capacitor
19	50	10.5-45		1FM-45	5M5Q5	MC225 IF Bypass Audio Grid*
20	250	10.5-45		1FM-45	5M5Q5	MC240 Fixed Padder*
21A	750	10.5-325		1FM-325	5M5T25	" " " "
21B	500					" " " "

*Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AERMOTIVE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22A	500KΩ		MRSO	D11-133	M-58-S	Volume Control
22B	Shaft		Not Req.	A	Not Req.	Attach to 22A per instructions
22C	Switch		M26	41	SW-A	" " " "

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		AERMOTIVE PART No.	IRC PART No.	WATTS	
23	150Ω		BW-1-150	1	Br.-Grn.-Br. RF Cathode
24	25KΩ		BTS-27K	2	Red-Grn.-Or. Oscillator Grid
25	2 Neg.		BTS-2-2 Meg.	2	Red-Blk.-Grn. AVC Network
26	25KΩ		BTS-27K	2	Red-Grn.-Or. IF Screen Dropping
27	150Ω		BW-1-150	1	Br.-Grn.-Br. IF Cathode
28	50KΩ		BW-2-47K	2	Grn.-Blk.-Or. Diode RF Filter
29	1 Meg.		BTS-1 Meg.	1	Br.-Blk.-Grn. AF Grid
30	250KΩ		BTS-270K	2	Red-Grn.-Yl. AF Plate Load
31	150KΩ		BTS-150K	2	Br.-Grn.-Yl. AF Plate Decoupling
32	500KΩ		BTS-500K	2	Grn.-Blk.-Yl. Output Grid
33	200KΩ		BW-2-220	2	Red-51k.-Br. Output Cathode
34	1200Ω		BTA-1200	2	Br.-Red-Red Filter
35	30Ω		ABA-50	2	Line Dropping-See Note 1 & 2
36	60Ω		BW-2-56	2	Blue-Blk.-Blk. Line Dropping-See Note 1
37	60Ω		BW-2-56	2	Blue-Blk.-Blk. Line Dropping-See Note 1

Note 1 - Not used in all models. When Item 35 is used in filament circuit, do not use Items 36 and 37 and vice versa.

Note 2 - On IRC replacement set slider at 30Ω from one end.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI.	SEC.	AERMOTIVE PART No.	THORDARN PART No.	
38	6000Ω	3.4Ω	400Ω	1.4Ω	A-3a23	722856†	†Solder to original bracket.
	CT		CT				

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC IMP.	AERMOTIVE PART No.	JENSEN PART No.	
39	2500Ω	3.4Ω		ST-4371	†Drill new mounting holes.
	CONE DIA.	VC DIA.		Mod. D8-RS	
40	7-3/4"	3/4"			NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT.

R F COILS

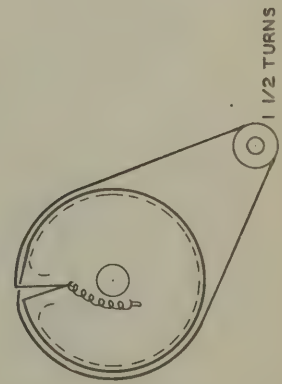
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AERMOTIVE PART No.	MESSNER PART No.	
41	Ant. Coil	48Ω	6.2Ω		14-1026	
42	RF Coil	50Ω	4Ω		14-1027	
43	Osc. Coil	22Ω	3Ω		14-1040	
44	Input IF	24Ω	30Ω		16-6658	
45	Output IF		25Ω		16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	AERMOTIVE PART No.	
46	Bayonet "	6-8	0.15			Type 47 "
47		6-8	0.15	Brown "		

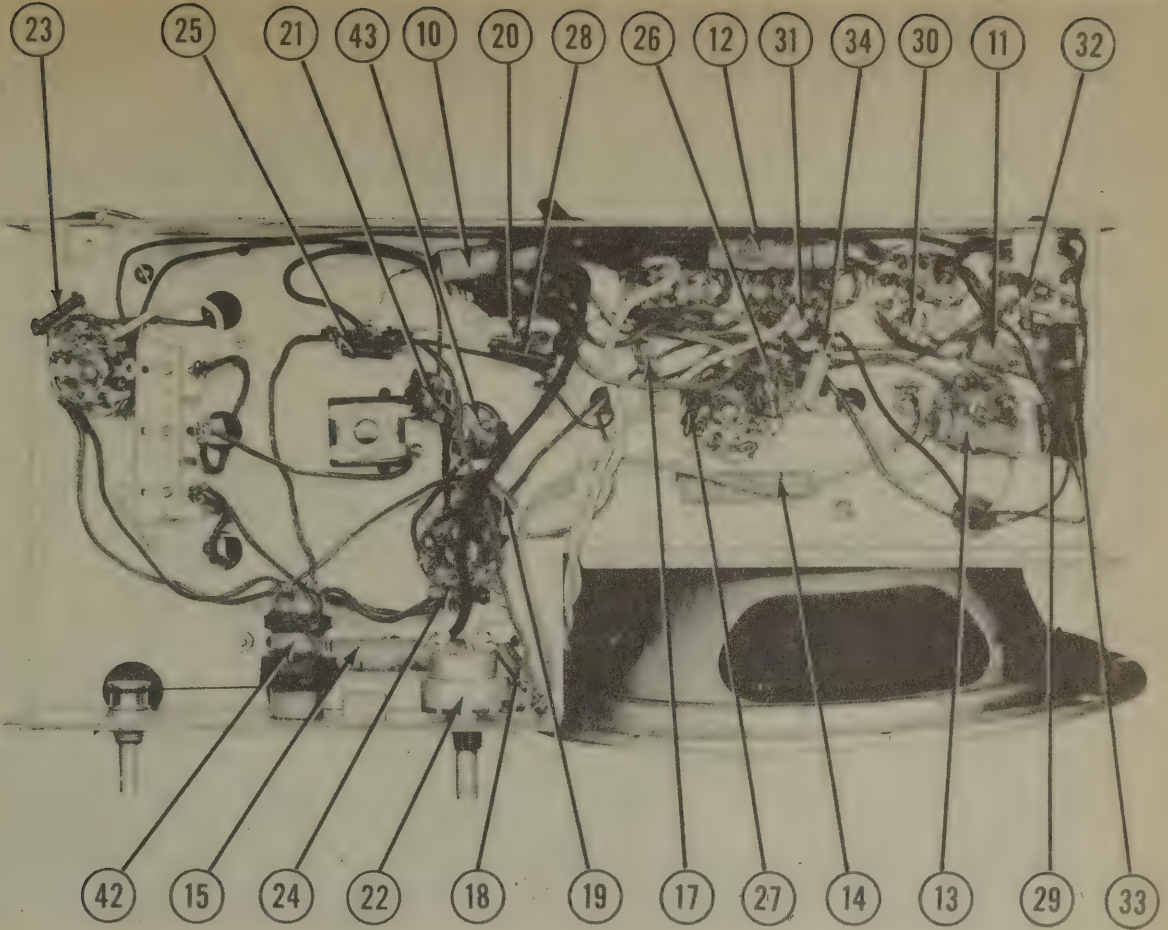
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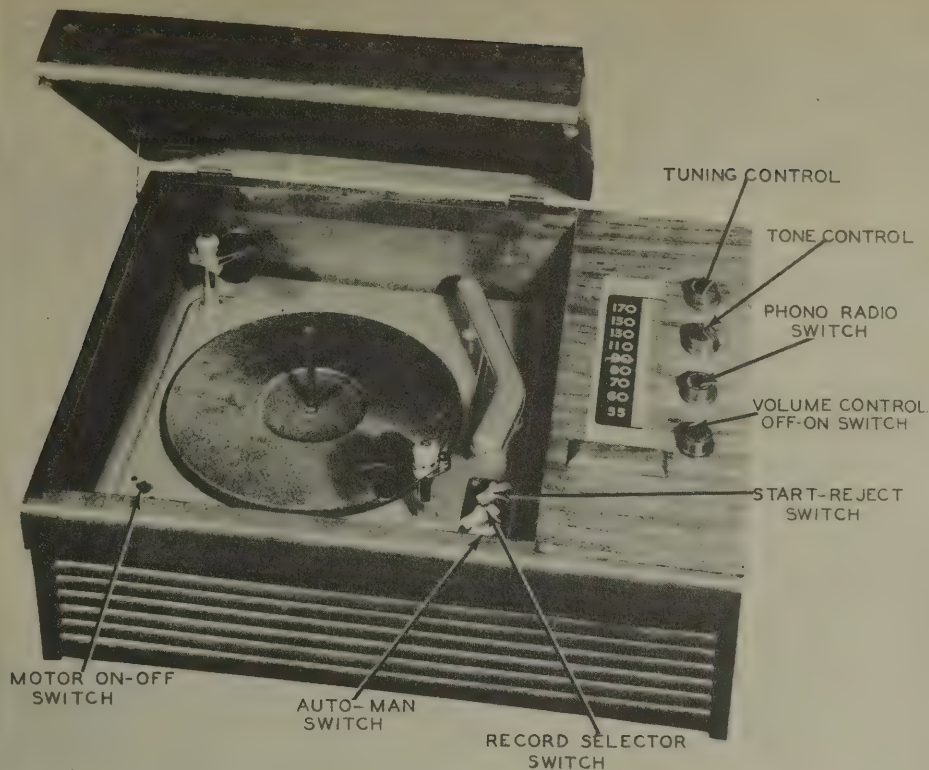
ITEM No.	PART NAME	AERMOTIVE PART No.	NOTES
48	3 Gang Var.Cap.		(13-468 MUF each section)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





AIR KING MODEL 4704

TRADE NAME Air King, Model 4704
MANUFACTURER Air King Products Co., Inc., 1523 63rd St., Brooklyn, N.Y.
TYPE SET AC Operated Automatic Radio - Phonograph Combination - Self Contained Loop Antenna
TUBES (SIX) Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 110-125 Volts AC

TUNING RANGE—BROADCAST 525-1740KC

RATING .265 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To adjust pointer turn variable fully closed and set pointer to last hole on left end of dial backplate. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and chassis. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to stat- tor of rear sec- tion of variable. Low side to chassis.	455KC	Variable fully closed.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
-	Loop	1500KC	2nd hole from right end of dial back- plate.	"	A5	Fashion loop from few turns of wire and radiate signal into loop. Adjust for maximum output.
"	"	1500KC	Tune for maxi- mum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		AIR KING PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8A-D	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8C	
5	Power Output	35L6GT	35L6GT	7A-C	
6	Rectifier	35Z5GT	35Z5GT	6A-D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

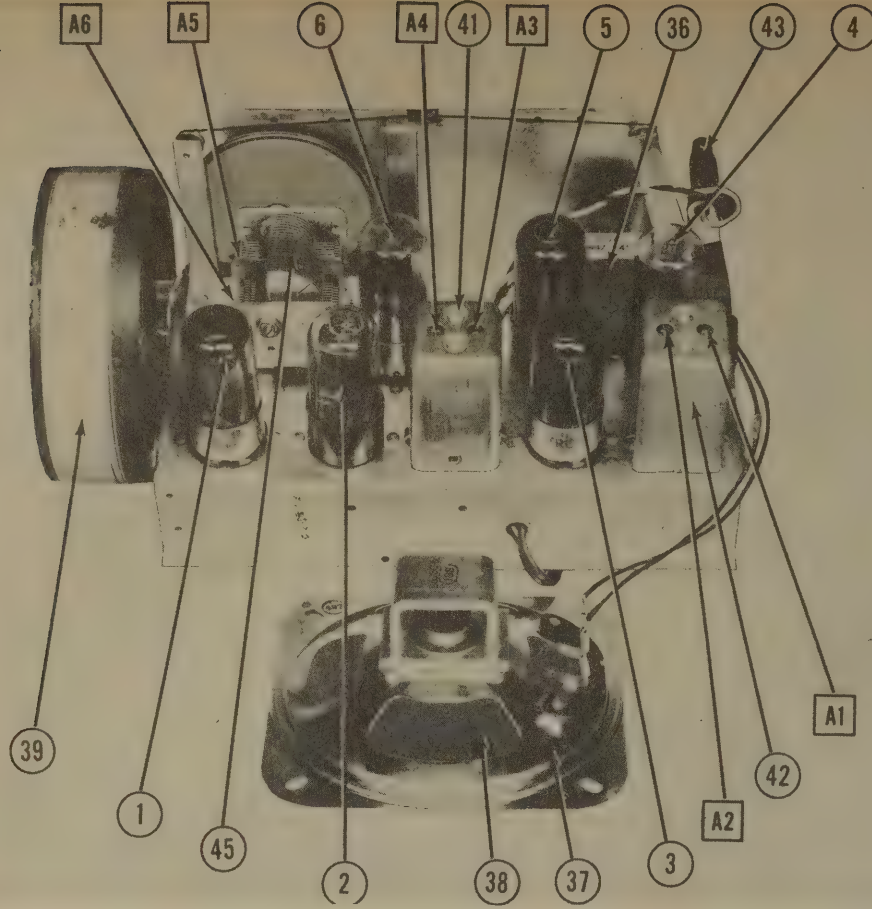
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		AIR KING PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	40 CAP. 150	2072	DSB-305	TA-440	FRS150-40	2N511
7B	40 CAP. 150					
7C	25 CAP. 25					
8	.05 CAP. 400		S-4-05	TA-25	FRS25-25	TC28
9	.01 CAP. 400		S-4-01	TC-15	D74S5	TP426
10	.01 CAP. 400		S-4-01	TC-11	D74S1	TP421
11	.005 CAP. 400		S-4-005	TC-25	D74S1	TP421
12	.002 CAP. 200		S-6-002	TC-22	D76D5	TP405
13	.002 CAP. 200		S-4-25	TC-2	D76D5	TP405
14	.05 CAP. 400		S-4-05	TC-15	D74S5	TP426
15	.005 CAP. 400		S-6-005	TC-22	D76D5	TP405
16	470 CAP. 500		M0.5-35	LFM-35	1488-0005	MC545
17	330 CAP. 500		M0.5-33	LFM-33	1488-0003	MC541
18	47 CAP. 500		M0.5-45	LFM-45	1468-0005	MC225
19	47 CAP. 500		M0.5-45	LFM-45	1468-0005	MC225

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIR KING PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
20A	500KΩ 1		M48	D13-133	M-30-2	Volume Control
20B	500KΩ 1		M26	41	SM-A	Attach to 20A per instructions
21A	500KΩ 1		M50	D11-133	M-58-S	Tone Control
21B	500KΩ 1		Not Req.	A	Not Req.	Attach to 21A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		RESISTANCE	AIR KING PART No.	IRC PART No.	
22	470Ω			BTS-470	Y1-V1 -Br. Antenna Loading
23	4700Ω			BTS-4700	Y1-V1 -Red RF Plate Load
24	100KΩ			BTS-100K	Br.-Blk.-Yl. Converter Grid
25	22KΩ			BTS-22K	Red-Red-Gr. Oscillator Grid
26	2.2 Meg.			BTS-2.2 Meg.	Red-Red-Grn. AVC Network
27	4.7 Meg.			BTS-4.7 Meg.	Y1-V1 -Grn. AF Grid
28	500KΩ			BTS-500K	Or.-Or.-Yl. AF Plate Load
29	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
30	150Ω			BW-2-150	Br.-Grn.-Br. Output Cathode
31	470KΩ			BTS-470K	Y1-V1 -Yl. Series Photo
32	220KΩ			BTS-220K	Red-Red-Yl. Photo Shunt
33	1500Ω			BT-2-1500	Br.-Grn.-Red Filter
34	7000Ω			AB-7000	AB-2-18
35	18Ω			BW-2-18	Br.-Gray-Blk. Rectifier Ballast



PARTS LIST AND DESCRIPTIONS (Continued) TRANSFORMER (OUTPUT)

ITEM No.	RATING		DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	PRI. SEC.	PRI. SEC.	PRI. SEC.	AIR KING PART No.	STANCOR THORDARN PART No.	
36	2500Ω	3.6Ω	160Ω	.9Ω	TA-200-447	A-3856 T22845	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	AIR KING PART No.	JENSEN PART No.	
37	PM	3.6Ω	SE25C-6	ST-105	
38	CODE DIA.	VC DIA.		Mod. P5-X	
39	5 1/2"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

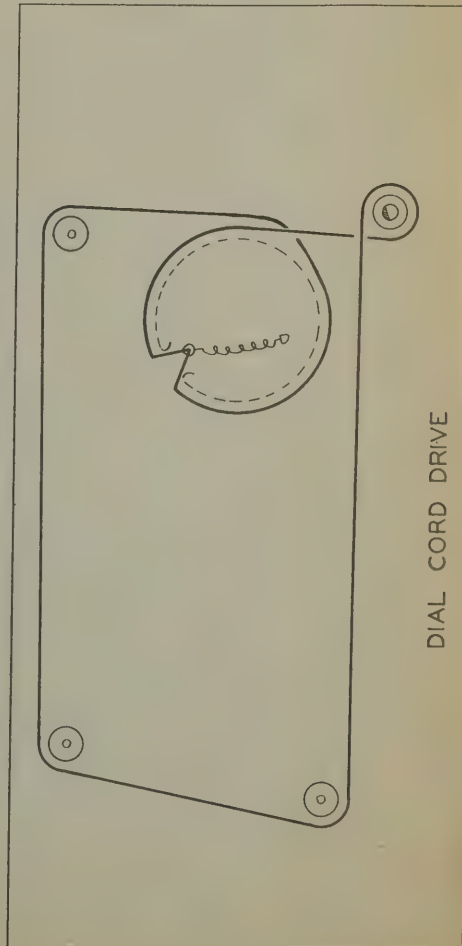
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIR KING PART No.	MEISSNER PART No.	
39	Loop	.1Ω	1.2Ω			
40	Osc. Coil	20Ω	3.5Ω	3329	14-1040	
41	Input IF	18.7Ω	18.9Ω	3329	16-5658	
42	Output IF				16-5660	

DIAL LIGHT

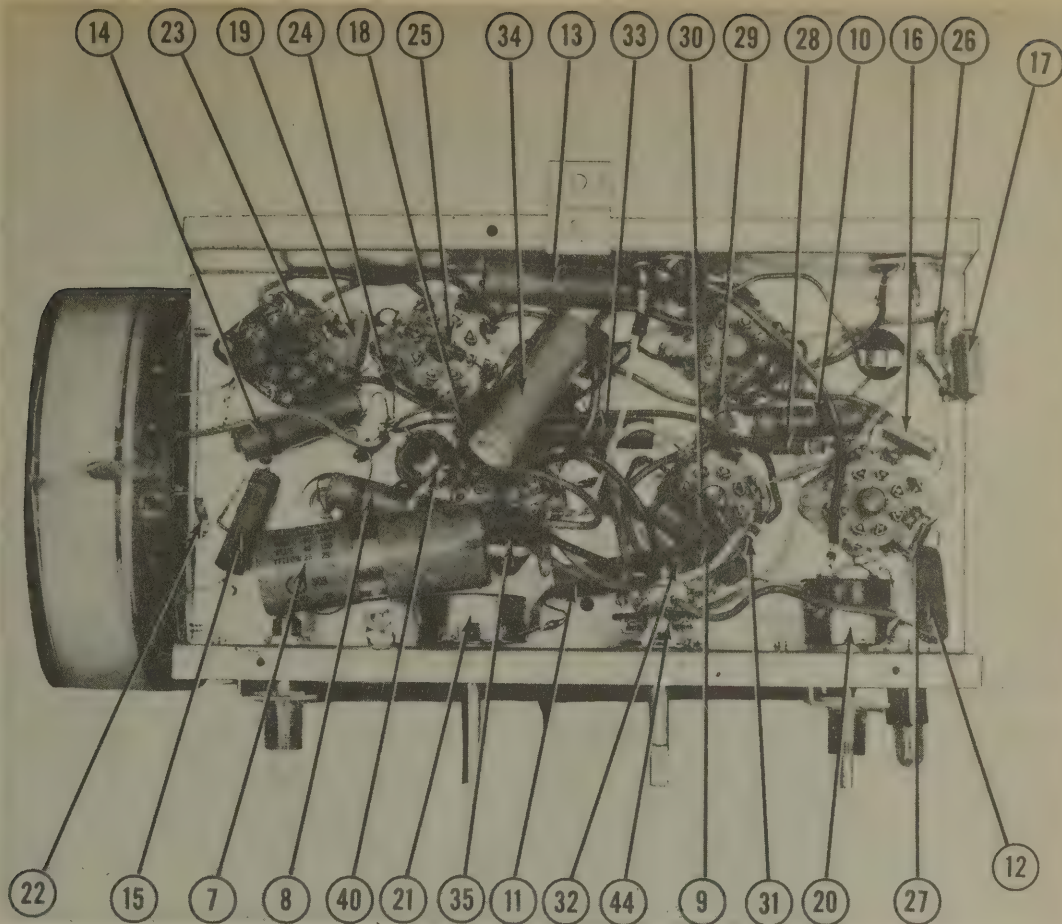
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIR KING PART No.		
43	Bayonet	6-8	0.15	BROWN			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	AIR KING PART No.	NOTES
44	Radio-Phono SW.		
45	2 Gang Var. Cap.		(29-192 MUF, 35-467 MMF)



CHASSIS—BOTTOM VIEW





AUTOMATIC MODEL 620

TRADE NAME Automatic, Model 620 MANUFACTURER Automatic Radio Mfg. Co., Inc., 122 Brookline Ave., Boston, Mass. TYPE SET AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna TUBES (SIX) Types, 12SK7 RF Amp., 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.						
POWER SUPPLY 110-125 Volts AC-DC TUNING RANGE—BROADCAST 538-1630KC RATING .235 Amp. @ 117 Volts AC						
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT To set pointer turn tuning shaft completely clockwise and set pointer to left edge of number 55. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum and output of signal generator no higher than necessary to obtain reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 8 of 12SA7. Low side to chassis.	455KC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy to .001 MFD to reduce hum modulation.
.1 MFD.	High side to ext. ant. lead. Low side to chassis.	"	Low freq. end of dial.	"	A5	Adjust for minimum output.
200 MMFD	"	1630KC	High freq. end of dial.	"	A6,A7.	Adjust for maximum output in order given.
200 MMFD	"	1400KC	Tune for maximum output.	"	A8	"

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		AUTOMATIC PART No.	STANDARD REPLACEMENT	BMA BASE TYPE	
1	RF Amp.	12SK7	12SK7	8N	
2	Converter	12SA7	12SA7	8R	
3	IF Amp.	12SK7	12SK7	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

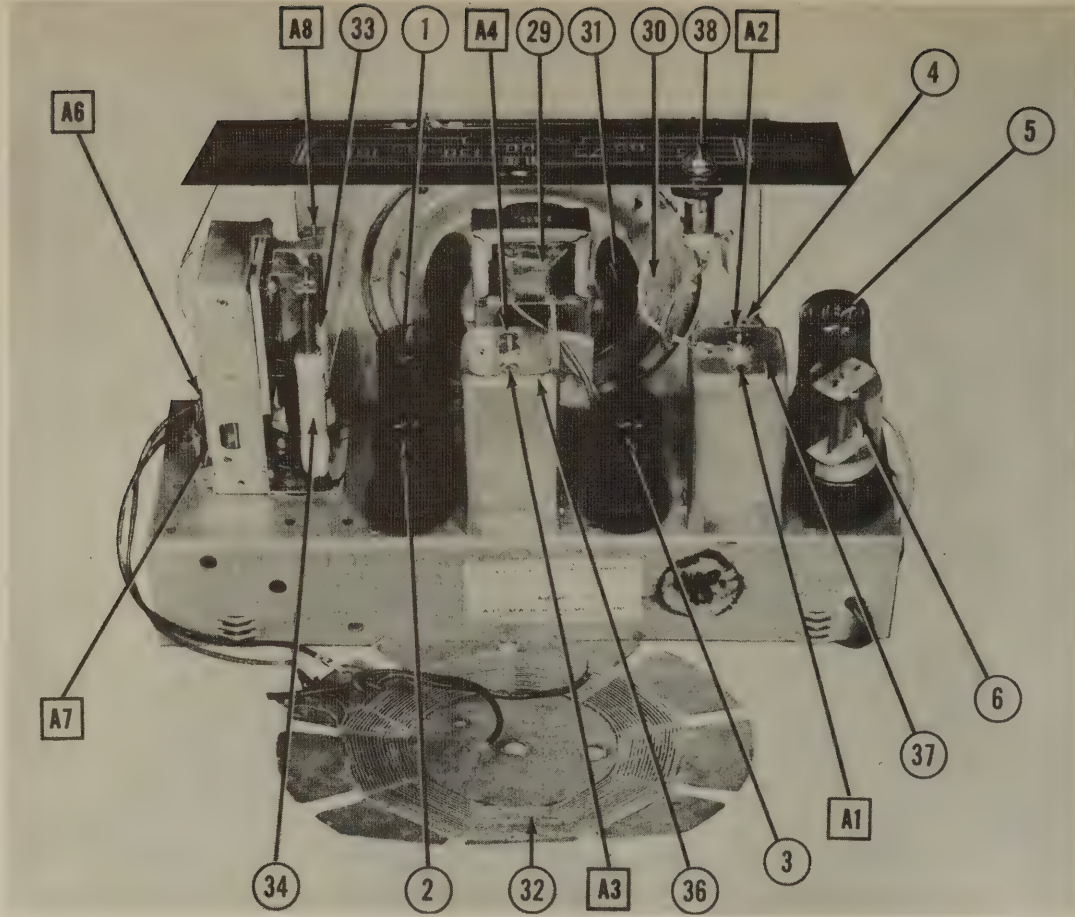
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		AUTOMATIC PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7	CAP. 50	M-50-150	UT-501	PR3150-50	ER5015	TC49
8	30	M-30-150	UT-301	PR3150-30	ER3015	TC47
9	.05	S-6-05	TC-15	684-05	D76S5	TP415
10	.01	S-4-01	TC-11	484-01	D74S1	TP421
11	.01	S-4-01	TC-11	484-01	D74S1	TP421
12	.002	S-6-002	TC-22	684-002	D76D2	TP405
13	.1	S-4-1	TC-1	484-1	D74P1	TP428
14	200	M0.5-32	1FM-32	1468-0002	5W5T2	NC237
15	500	M0.5-35	1FM-35	1468-0005	5W5T5	NC245
16	100	M0.5-31	1FM-31	1468-0001	5W5T1	NC235
17	500	M0.5-35	1FM-35	1468-0005	5W5T5	NC245

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AUTOMATIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	RESIST-ANCE 250KΩ	RV-46	MR44	D13-130	M-64-Z	Volume Control
B	Shart.	Not Req.	Not Req.	A	Not Req.	Attach to 18A per instructions
C	Switch	Not Req.	M25	41	SW-A	"

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		AUTOMATIC PART No.	IRC PART No.	
19	RESISTANCE 4000Ω		ETA-3900	Y1.-Blk.-Red RF Plate Load
20	390KΩ		BTS-390K	Or.-White-Y1. Converter Grid
21	20KΩ		BTS-22KΩ	Red-Blk.-Or. Oscillator Grid
22	2 Meg.		BTS-2.2 Meg.	Red-Blk.-Orn. AVC Network
23	10 Meg.		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
24	200KΩ		BTS-220K	Red-Blk.-Y1. 1st AF Plate Load
25	390KΩ		BTS-390K	Or.-White-Y1. Output Grid
26	390KΩ		BTS-390K	Or.-White-Y1. "
27	150Ω		EW-1-150	Br.-Orn.-Br. Bias
28	100KΩ		BT-2-1000	Br.-Blk.-Red Filter



CHASSIS—BOTTOM VIEW

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AUTOMATIC		STANDARD		
	PRI	SEC.	PRI.	SEC.	PART No.	PART No.	STANCO	THORDARN	
29	2000Ω	3.3Ω	125Ω	.45Ω	Part of PM-601	A-3876*	T22S45*		*Band mounting tabs down, file out slots and mount on original bracket.

SPEAKER

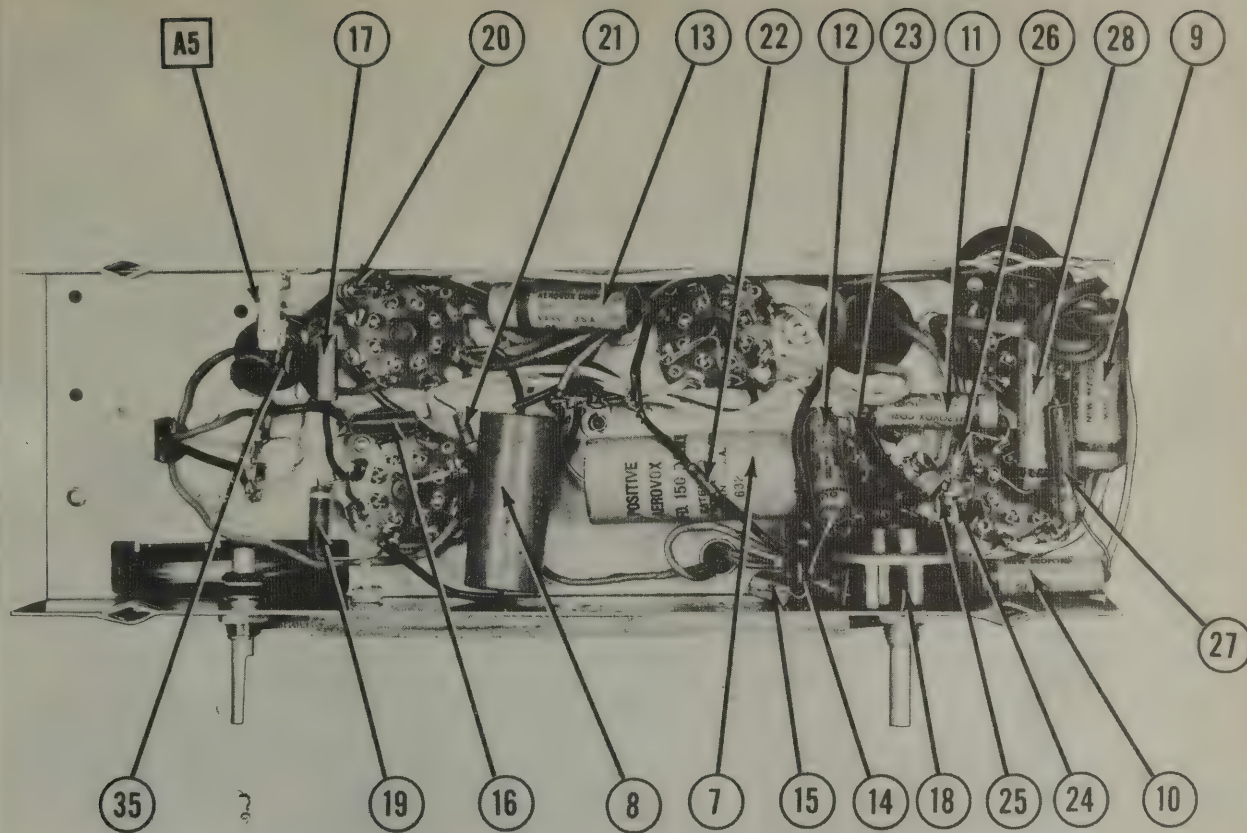
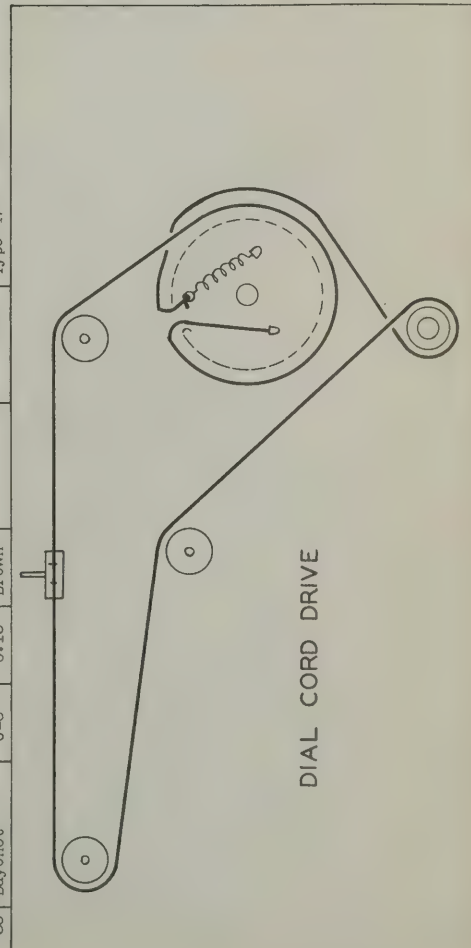
ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD PM	VC IMP.	AUTOMATIC PART No.	JENSEN PART No.	
30	FIELD PM	VC IMP.	PM-601	ST-106 Mod. PS-W	
31	CONE DIA. 4-3/4"	VC DIA. 1/2"	NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT.		

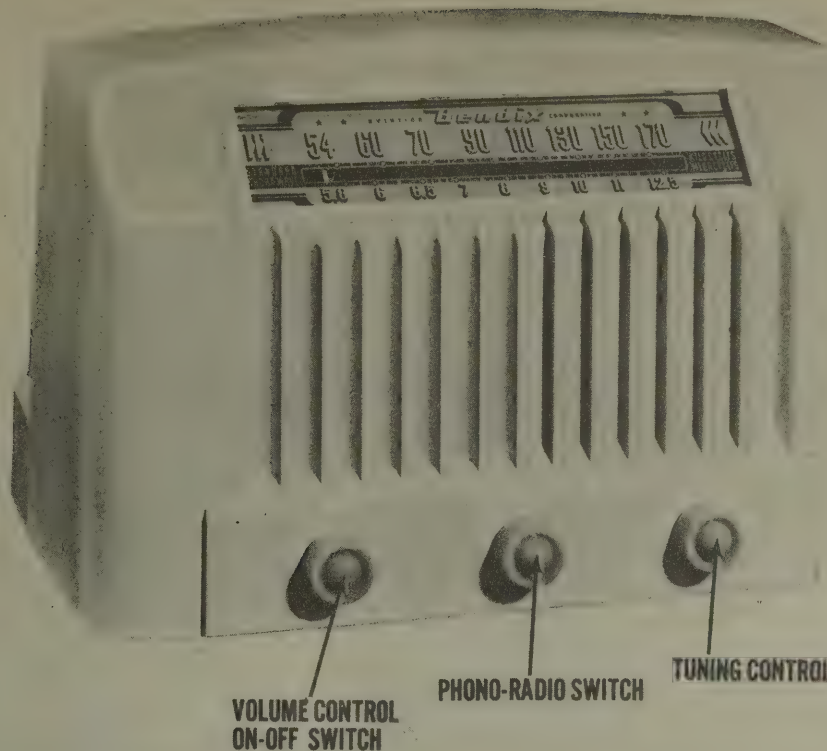
RF COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AUTOMATIC	MEISSNER PART No.	
32	Loop		19			
33	RF Coil		210			
34	Osc. Coil	.52	3-52			
35	Wave Trap		449			
36	Input IF	172	17-52		16-6658	
37	Output IF	172	180		16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AUTOMATIC PART No.		
33	Bayonet	6-8	0.15	Brown			Type 47





BENDIX MODEL 626-A (0626A)

TRADE NAME		Bendix Model 626-A (0626A)					
MANUFACTURER		Bendix Radio, Div. of Bendix Aviation Corp., Baltimore, Md.					
TYPE SET		AC-DC Operated Two Band Superheterodyne Receiver - Self Contained Loop Antenna					
TUBES (SIX)		Types, 14A7 RF Amp., 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 35A5 Power Output, 35Y4 Rectifier.					
POWER SUPPLY		105-125 Volts AC-DC		RATING		.235 Amp. @ 117 Volts AC	
TUNING RANGE—BROADCAST		535-1725KC		SHORT WAVE		5.7-12.5MC	
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
To set pointer turn variable fully closed and set pointer 2-3/16" from left end of dial back-plate. Use isolation trans. if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #6 (signal grid) of 14Q7. Low side to B-.	455KC	BC	High freq. end. (Variable fully open)	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200 MMF	High side to ext. ant. Low side to chassis.	1725KC	"	"	"	A5	Adjust for maximum output
200 MMF	"	1500KC	"	Tune for maximum output.	"	A6,A7.	" " " "
400 ohms	"	12.5MC	SW	High freq. end.	"	A8	" " " "
400 ohms	"	11.0MC	"	Tune for maximum output	"	A9	Rock variable and adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		BENDIX PART No.	STANDARD REPLACEMENT		
1	RF Amp.	14A7	14A7	8V	
2	Converter	14A7	14A7	8V	
3	IF Amp.	14A7	14A7	8V	
4	Det.-AVC-AF	14B6	14B6	8V	
5	Power Output	35A5	35A5	GAA	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		BENDIX PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	40	CP3A00	DY-604020-150	DEL-224	AP844D	▲ Filter
7B	20					
7C	150					
8	.1	CP4T51	S-4-1	TC-1	484-1	TP428
9	.05	CP4T40	S-4-05	TC-15	484-05	TP426
10	.02	CP4T34	S-4-02	TC-12	484-02	TP423
11	.1	CP4T51	S-4-1	TC-1	484-1	TP423
12	.05	CP4T40	S-4-05	TC-15	484-05	TP426
13	.05	CP4T40	S-4-05	TC-15	484-05	TP426
14	.005	CP4T20	S-6-006	TC-26	484-006	TP409
15	.005	CP4T20	S-6-006	TC-26	484-006	TP409
16	.05	CP4T40	S-4-05	TC-15	484-05	TP426
17	.1	CP4T51	S-4-1	TC-1	484-1	TP423
18	.05	CP4T40	S-4-05	TC-15	484-05	TP426
19	220	CP5A30	M0.5-32	1FM-32	1468-00002	TP423
20	470	CP5A14	M0.5-45	1FM-45	1468-00005	TP423
21	470	CP8B50	M0.5-35	1FM-35	1468-00005	TP423
22	3.3	CP9A16	M0.5-45	1FM-45	1468-00005	TP423
23	47	CP5A14	M0.5-45	1FM-45	1468-00005	TP423
24	220	CP5A30	M0.5-32	1FM-32	1468-00002	TP423
25	470	CP5A38	M0.5-35	1FM-35	1468-00005	TP423

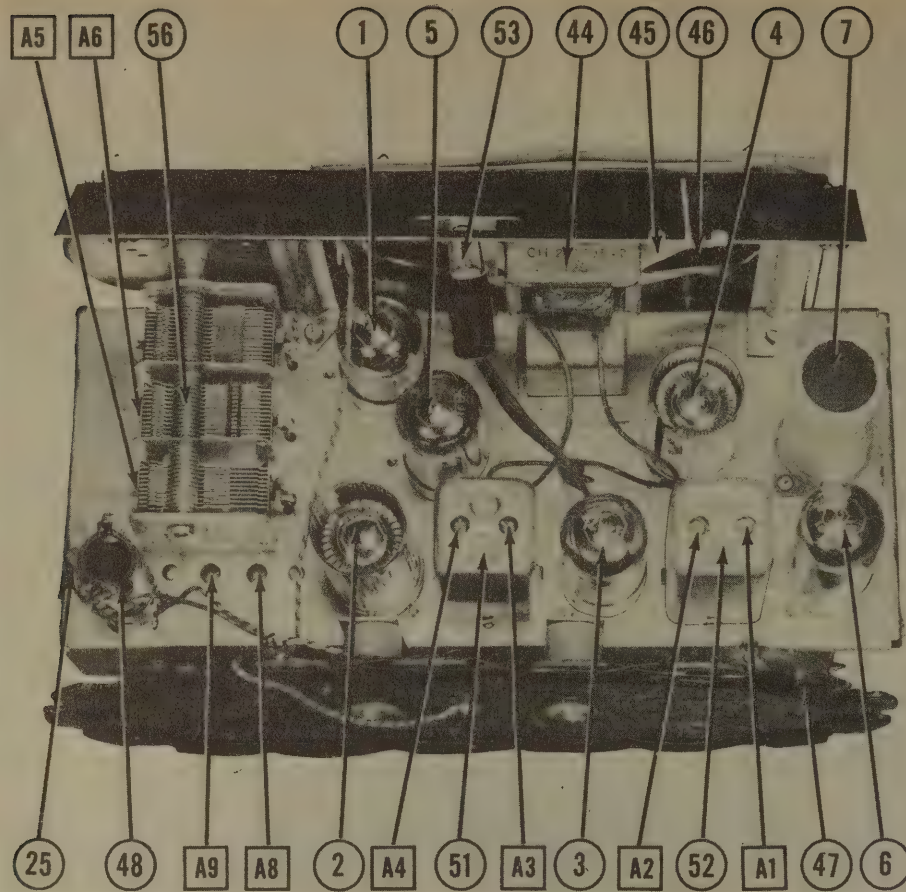
1 Parallel with EL type to obtain desired capacity.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		BENDIX PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
26A	1 Meg.	RV4500		D17-137X	T-101	Volume Control
26B	Shunt	Not Req.		A	Not Req.	Attach to 26A per instructions
26C	Switch			41	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		BENDIX PART No.	IRC PART No.	
27	220K	RC1H16	BW-2-220	Red-Red-Br. RF Cathode
28	220K	RC1H40	BTS-22K	Red-Red-Or. Oscillator Grid
29	470K	RC1H20	BTS-470	Yl.-Vl.-Br. Decoupling
30	3.3 Meg.	RC1H68	BTS-3.3 Meg	Or.-Or.-Grn. AVC Network
31	220K	RC1H54	BTS-220K	Red-Red-Yl. 1st AF Plate Load
32	4.7 Meg.	RC1H70	BTS-4.7 Meg	Yl.-Vl.-Yl. 1st AF Grid
33	470K	RC1H58	BTS-470K	Yl.-Vl.-Yl. Diode Load
34	22K	RC1H40	BTS-22K	Red-Red-Or. Tone Compensation
35	100K	RC1H51	BTS-100K	Br.-Bk.-Yl. "
36	15K	RC1H36	BTS-15K	Br.-Grn.-Or. "
37	680K	RC1H34	BTS-680K	Blue-Gray-Red Tone Compensation
38	470K	RC1H59	BTS-470K	Yl.-Vl.-Yl. Output Grid
39	150K	RC1H28	BW-1-150	Br.-Grn.-Br. Output Cathode
40	470K	RC1H32	BTS-470K	Yl.-Vl.-Red Filter
41	220K	RC4G28	ETA-2200	Red-Red-Red
42	33K	RL1A06	BW-1-33	Or.-Or.-Blk. Surge Limiter
43	220K	RC1H54	BTS-220K	Red-Red-Yl. Line Isolating



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	BENDIX PART No.	THORNDAR'N PART No.	
44	2500Ω	3.1Ω	TA0001	A-3876*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	BENDIX PART No.	JENSEN PART No.	
45	FM	3.1Ω	SR400		
46	CONE DIA. 4" X 6"	VC DIA. 1 1/2"			NOT READILY REPLACIBLE-USE COMPLETE SPEAKER UNIT. Code 232 CS4000 Core and Voice Ass'y. (Code 232) CS4001 " " " " (" 328) CS4002 " " " " (" 270) CS4006 " " " " (" 191) CS4007 " " " " (" 371)

R F COILS

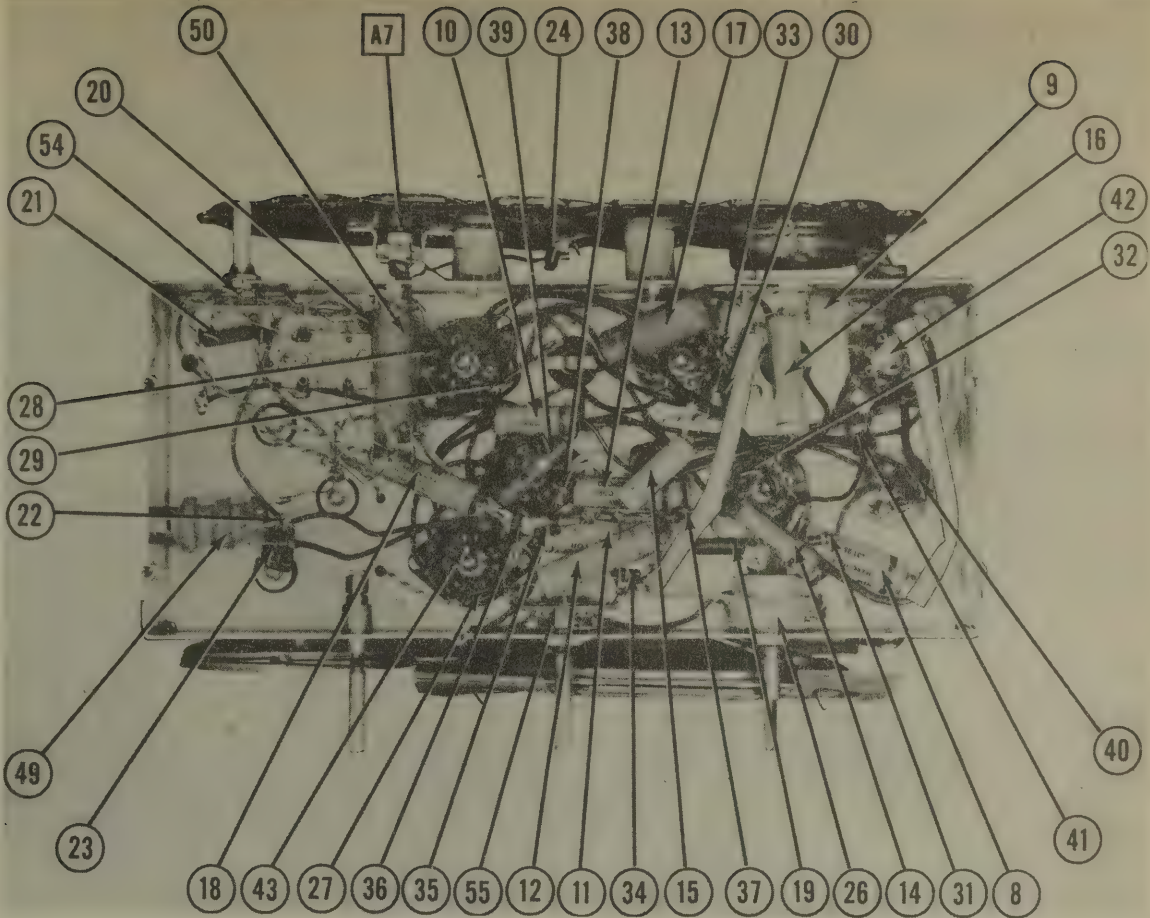
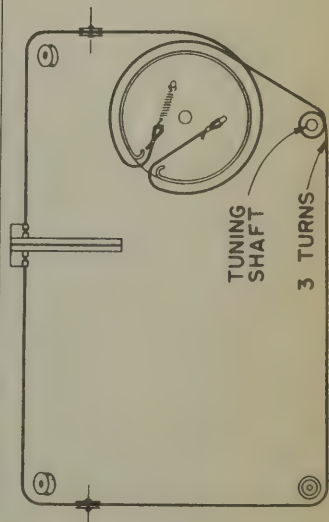
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	BENDIX PART No.	MESSNER PART No.	
47	Loop Ant. Coil	22Ω	6Ω	AL001		
48	SW Ant. Coil	0Ω	0Ω	TR6000	14-1044	
49	EC RF Coil	5Ω	5.8Ω	TR6100	14-1027	
50	EC Osc. Coil	2Ω	2Ω	TR6100		Items 50A, 50B wound same form
51	SW Osc. Coil	22Ω	22Ω	TR6100	16-6858	
52	Input IF	22Ω	22Ω	TR6100	16-6870	

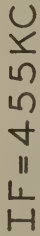
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	BENDIX PART No.	
53	Bayonet	6-8	0.15	Brown		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	BENDIX PART No.	NOTES
54	Band Switch	SR2001	Rotary 2 Pos. 3 Pole
55	Radio-Phono Sw.	SR4000	Rotary 4 Pos. 33 Pole
56	3 Gang Var. Cap.	CV0000	Trimmers A5 & A6 Incl.
A7	Trimmer		2-20 MTF (Loop Ant. Adj.)
A8	Dual Trimmer	CT2A00	2-20 MTF (Sw. Osc. Adj.)
A9	Indicator	1DQ006	4-70 MTF (Sw. Ant. Adj.)
	Dial Scale	DS0001	
	Knob	KE0303	Indexed, Tan
	"	KC0308	Plain, Tan
	"	KYC300	Bandswitch, Brown
	Cabinet	ZF0100	Ivory, Plastic





NOTE
 $\frac{1}{\text{---}}$ CHASSIS GROUND.

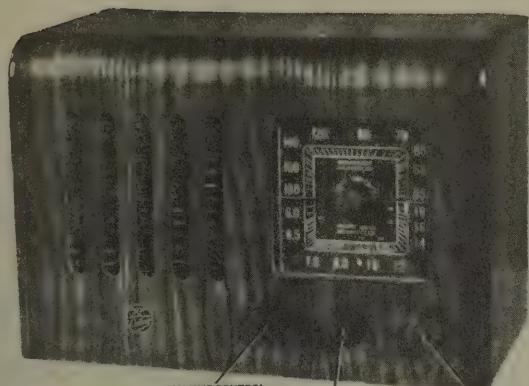
Band Switch in Broadcast position.
Radio-Phono-Tone Switch in Radio Treble position.

Item	Tube	Pin 3	Pin 4	Pin 5	Pin 6	Pin 8
1	1A47	50VAC	65VDC	65VDC	35VDC	12VDC
2	1A47	35VAC	65VDC	32VDC	35VDC	26VAC
3	1A47	62VAC	62VDC	62VDC	33VDC	33VAC
4	1A46	35VAC	65VDC	65VDC	OV	OV
5	35A5	102VAC	67VDC	65VDC	OV	58VDC
6	35A4	87VAC	113VAC	108VDC	OV	11VDC
						50VAC
						85VAC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

Item	tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14A7	45a	100K Ω	100K Ω	0 Ω	3.9M Ω	220 Ω	0 Ω	34a
2	14Q7	12a	100K Ω	100K Ω	22K Ω	0 Ω	3.9M Ω	1a	23a
3	14A7	23a	100K Ω	100K Ω	0 Ω	3.9M Ω	0 Ω	34a	34a
4	14B6	12a	320K Ω	4.3M Ω	0 Ω	50K Ω	0 Ω	0 Ω	0 Ω
5	35A5	75a	100K Ω	100K Ω	0 Ω	0 Ω	430K Ω	135a	45a
6	35V4	100a	98a	100K Ω	98a	INF	INF	10K Ω	75a

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS



VOLUME CONTROL
ON-OFF SWITCH BAND SWITCH TUNING CONTROL
MODEL 100 X



VOLUME CONTROL
ON-OFF SWITCH BAND SWITCH TUNING CONTROL
MODEL 101

20TH CENTURY
MODELS 100X, 101, 104

TRADE NAME 20th Century, Models 100X, 101, 104
MANUFACTURER Electronic Devices Co., 601 W. 26th St., New York, N.Y.
TYPE SET AC-DC Operated 2 Band Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (SIX) Types, 12SA7 Converter, 12SK7 1st IF Amp., 12SK7 2nd IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier or Lock-In Type Equivalents.
POWER SUPPLY 110-125 Volts AC-DC
TUNING RANGE—BROADCAST 540-1640KC RATING 260 Amp. @ 117 Volts AC
SHORT WAVE 5.8-16.0MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn to low frequency end and set pointer parallel to horizontal line on dial. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and B-. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stat- tor of rear sec- tion of variable. Low side to B-.	456KC	BC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
	Loop	1400KC	"	1400KC	"	A5	Use a loop fashioned with 3 or 4 turns of wire and radiate signal into set. Adjust for maximum output.
	"	"	"	Tune for maxi- mum output.	"	A6	"
400 ohms	High side to ext. ant. lead. Low side to chassis.	14MC	SW	14MC	"	A7	Adjust for maximum output
400 ohms	"	"	"	Tune for maxi- mum output.	"	A8	Rock variable and adjust for maximum output. Re- check A5 at 1400KC.

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		20th CENT. PART No.	STANDARD REPLACEMENT		
1A	Converter	12SK7	12SA7	8R	Octal Type
2A	1st IF Amp.	14Q7	14Q7	8AL	Lock-In Type
3A	1st IF Amp.	14A7	12SK7GT	8N	Some models use 12SJ7 for 1st IF Amp.
3B	2nd IF Amp.	12SK7GT	14A7	8N	
4A	Det.-AVC-AF	12SQ7	12SK7GT	8V	
4B	Det.-AVC-AF	12SQ7	14A7	8Q	
5A	Power Output	35L6GT	14B6	7AC	
6A	Rectifier	35Z5GT	35A5	6AA	
6B	Rectifier	35Z5GT	35Z5GT	6AD	
			35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

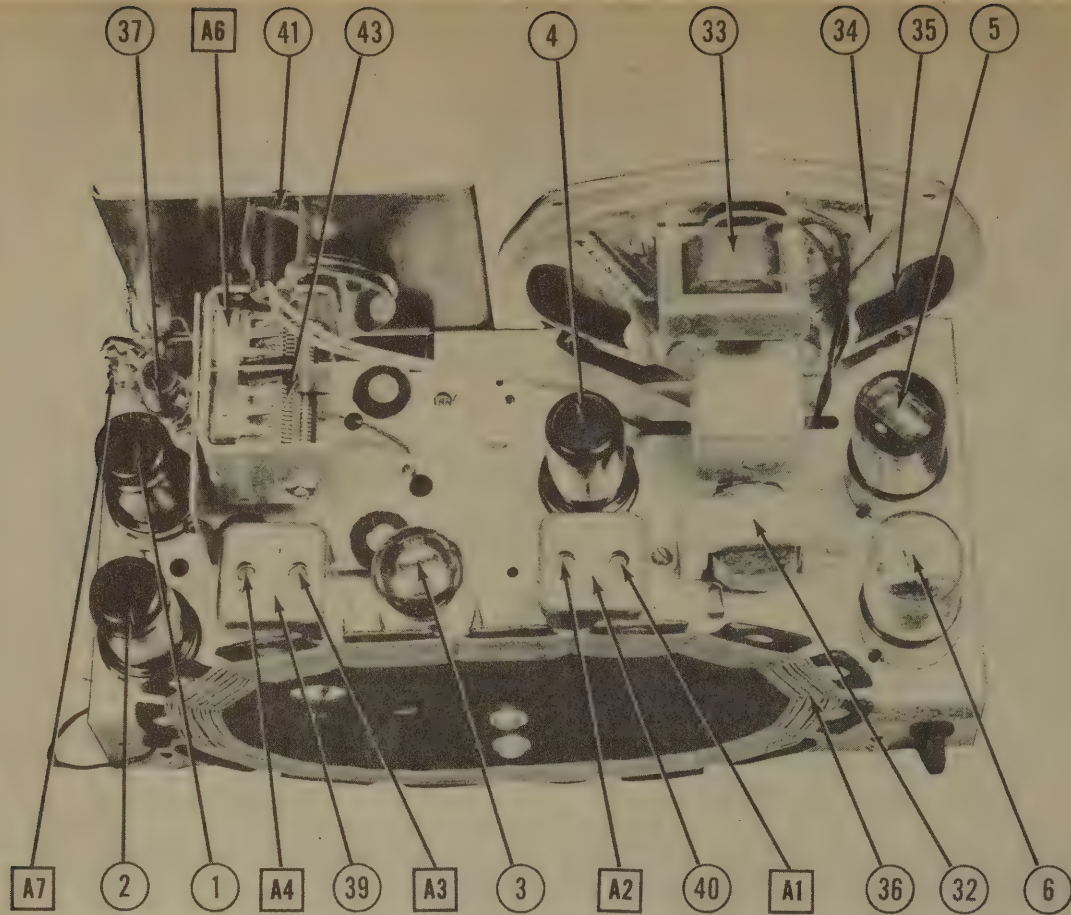
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		20th CENT. PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	CAP.		M-2X40-150	TA-440	PRSA150-40-40	Filter - Red
7B	40					Line Filter
8C	150					35L6 Plate Bypass
9	.03		S-4-1	TC-1	484-1	Audio Coupling
10	.03		S-6-03	TC-13	484-03	AVC Filter
11	.002		S-4-01	TC-11	484-01	Line Isolation
12	.1		S-6-002	TC-22	684-002	Audio Plate Decoupling
13	.25		S-4-25	TC-1	484-1	RF Bypass Pwr. Supp.
14	.25		S-4-25	TC-2	484-25	Line Isolation
15	.002		S-6-002	TC-22	684-002	Audio Plate Decoupling
16	.01		S-4-01	TC-11	484-01	Line Isolation
17	200		M0-5-32	1FM-32	1438-0002	Audio Plate Bypass
18	200		M0-5-32	1FM-32	1468-0002	IF Bypass Vol. Cont.
19	500		M0-5-45	1FM-45	1488-0005	Osc. Grid Capacitor
20	100		M0-5-31	1FM-31	1488-0001	IF Coupling
21	100		M0-5-31	1FM-31	1488-0001	Conv. Plate Bypass

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		20th CENT. PART No.	MALLORY PART No.	CLAROSTAT PART No.	
22A	WATTS		MR48	M-60-Z	Volume Control
22B	500KΩ		Not Req.	Not Req.	Attach to 22A per instructions
22C	Shaft		Not Req.	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		20th CENT. PART No.	IRC PART No.	
23	22KΩ		BTS-22K	Red-Red-Or. Osc. Grid
24	22KΩ		BTS-22K	Red-Red-Or. Converter Plate Load
25	150KΩ		BTS-150K	Br.-Grn.-Yl. 1st IF Grid
26	3 Meg.		BTS-3.3 Meg	Or.-Blk.-Grn. AVC Network
27	3 Meg.		BTS-3.3 Meg	Or.-Blk.-Grn. 1st AF Grid
28	240KΩ		BTS-240K	Red-Yl.-Yl. 1st AF Plate Load
29	470KΩ		BTS-470K	Yl.-Yl.-Yl. 1st AF Plate Filter
30	470KΩ		BTS-470K	Yl.-Yl.-Yl. Output Grid
31	150Ω		BM-2-150	Br.-Grn.-Br. Output Cathode



PARTS LIST AND DESCRIPTIONS (Continued) **FILTER CHOKES**

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	20th CENTURY PART No.	STANCOR PART No.	
32	64 MA	250Ω	4.7 Henries	C-1709*	*Drill one new mounting hole.

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	20th CENT. PART No.	THORDARN PART No.	
33	2200Ω	90Ω	A-5876	T22845	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	20th CENTURY PART No.	JENSEN PART No.	
34	6"	3-28	ST-109	Mod. PB-W	
35	6"	2"	NOT READILY REPLACABLE—USE COMPLETE SPEAKER UNIT.		

R F COILS

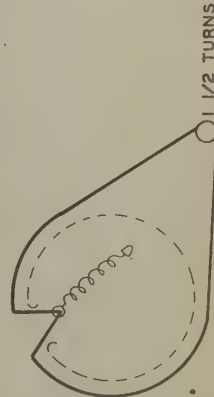
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	20th CENTURY PART No.	WEISSNER PART No.	
36	Loop Ant.	.3Ω	1.5Ω	14-1044		
37	SW Ant. Coil	.5Ω	.2Ω			
38	BC Osc. Coil	.5Ω	.7Ω			
39	SW "	.5Ω	.2Ω			
40	Input IF	19Ω	20.3Ω	2010C	16-6658	Items 38A, 38B wound on same form
	Output IF	29Ω	29Ω	2011C	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	20th CENTURY PART No.	
41	Bayonet	6-8	0.15	Brown		Type 47

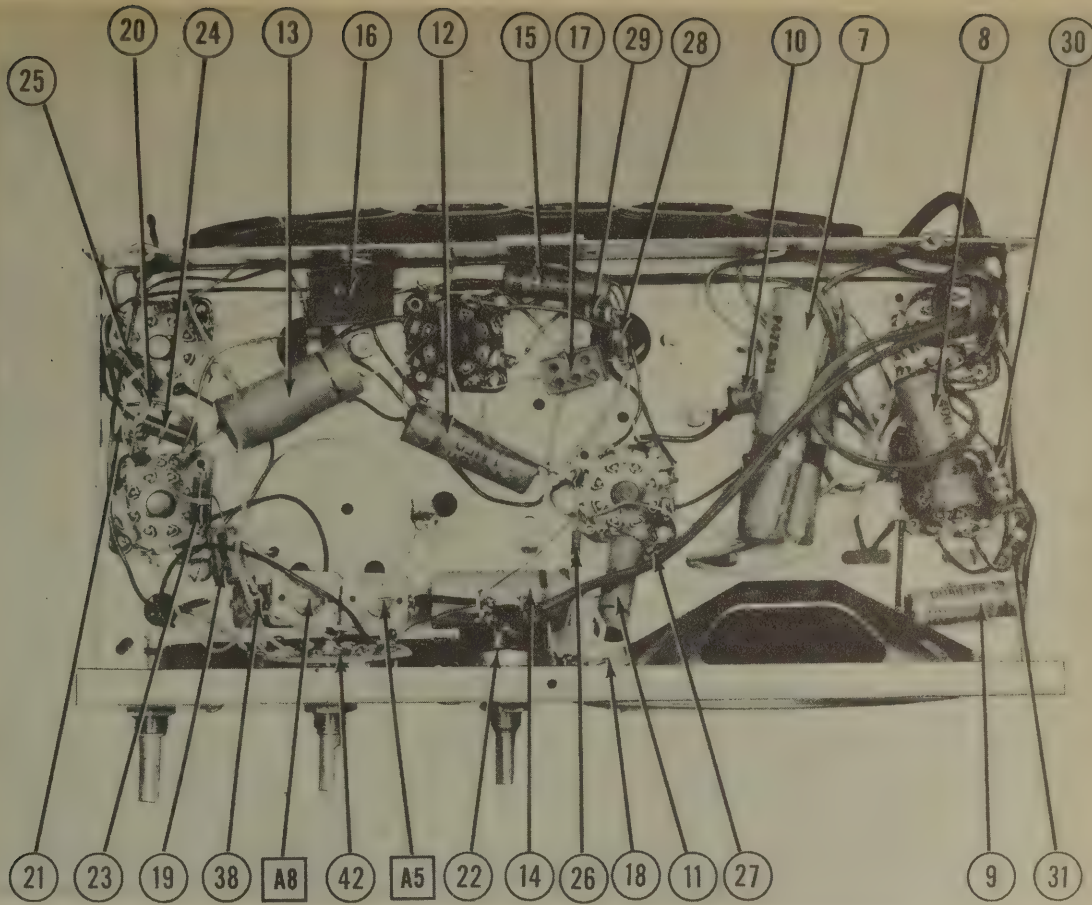
MISCELLANEOUS

ITEM No.	PART NAME	20th CENTURY PART No.	NOTES
42	Bandswitch		
43	Tuning Gang		(16-443 MNF, 9-145 MNF)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





CLARK AMPLIFIER MODEL PA-10

TRADE NAME	Clark Amplifier, Model PA-10
MANUFACTURER	Clark Radio Equipment Corp., 4313 N. Lincoln Ave., Chicago 18, Illinois
TYPE SET	AC Operated Audio Amplifier
TUBES (FIVE)	Types 7F7 Audio Amp., 7F7 Audio Amp.-Phase Inverter, (2) 6V6GT Power Output 5Y3GT Rectifier
POWER SUPPLY	117 Volts AC
RATING	.700 Amps. @ 117V AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7F7	3.3VAC	2V.DC	117V.DC	0V.	.3V.DC	122V.DC	2V.DC	3.3VAC
2	7F7	3.3VAC	1.8V.DC	138V.DC	0V.	0V.	132V.DC	2V.DC	3.3VAC
3	6V6GT	0V.	3.3VAC	340V.DC	345V.DC	0V.	0V.	3.3VAC	22V.DC
4	6V6GT	0V.	3.3VAC	340V.DC	345V.DC	0V.	0V.	3.3VAC	22V.DC
5	5Y3GT	0V.	345V.DC	0V.	315VAC	0V.	315VAC	0V.	345V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7F7	.1Ω	2.2KΩ	160KΩ	1.1MEG.	250KΩ	160KΩ	2.2KΩ	.1Ω
2	7F7	.1Ω	2.2KΩ	120KΩ	200KΩ	90KΩ	120KΩ	2.2KΩ	.1Ω
3	6V6GT	INF.	.1Ω	10KΩ	10KΩ	290KΩ	INF.	.1Ω	235Ω
4	6V6GT	INF.	.1Ω	10KΩ	10KΩ	300KΩ	INF.	.1Ω	235Ω
5	5Y3GT	INF.	10KΩ	INF.	92Ω	INF.	85Ω	INF.	10KΩ

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA			RMA BASE TYPE	INSTALLATION NOTES
		CLARK PART No.	STANDARD REPLACEMENT			
1	Audio Amp. Ph. Inv.	7F7	7F7		8AC	
2	Audio Amp. Ph. Inv.	7F7	7F7		8AC	
3	Power Output	6V6GT	6V6GT		7AC	
4	Power Output	6V6GT	6V6GT		7AC	
5	Rectifier	5Y3GT	5Y3GT		5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		CLARK PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	20		DY-312	EL-212	AF32K4A	UP4CJ5	FP330
B	350						
C	10						
7A	20		DY-310	EL-102	AF32K4A	UP4CJ5	FP332
B	400						
C	10						
8	20						
9	.05	S-4-05		TC-15	484-05	DT4S5	TP426
10	.05	S-4-05		TC-15	484-05	DT4S5	TP426
11	.005	S-4-02		TC-12	484-02	DT4S2	TP423
12	.005	S-6-005		TC-25	684-005	DT6D5	TP408
	.02	S-4-02		TC-12	484-02	DT4S2	TP423

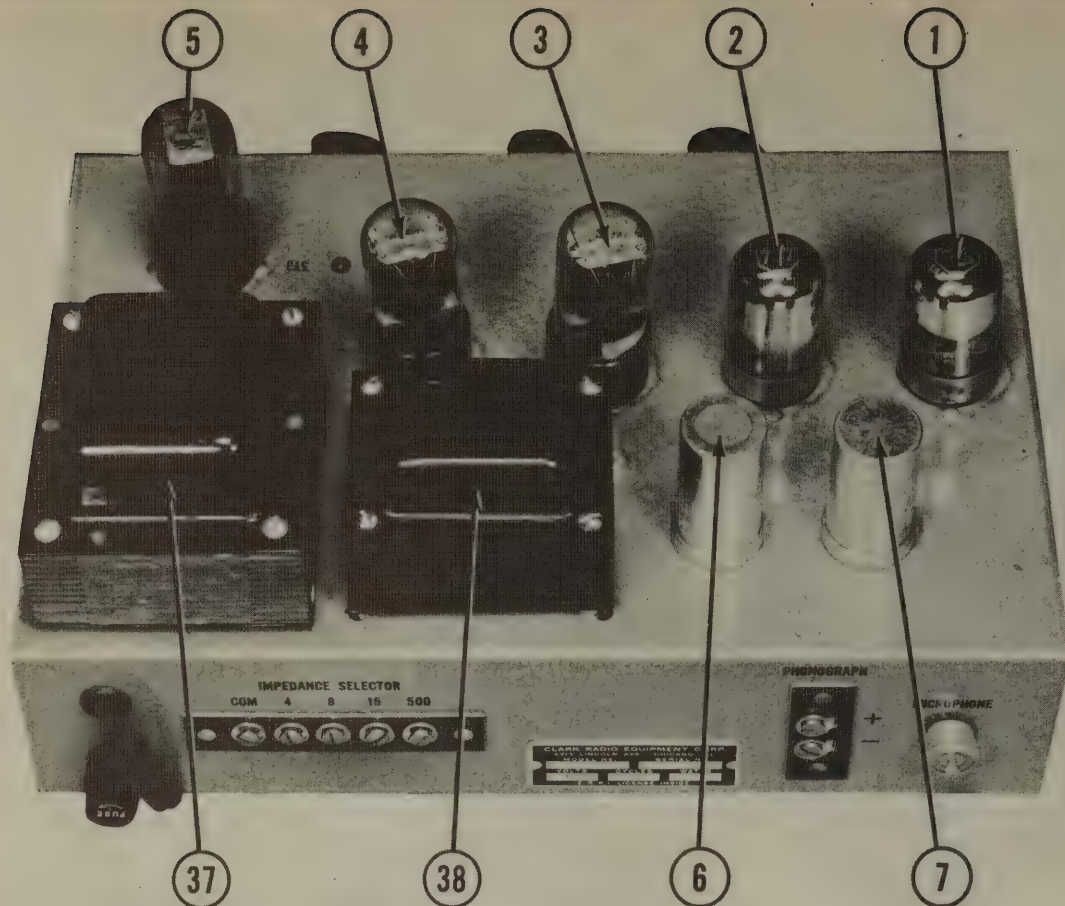
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA					INSTALLATION NOTES
		RESISTANCE	WATTS	CLARK PART No.	MALLORY PART No.	IRC PART No.	
13A	500K Ω	1		MR48		D13-133	Mike Volume Control.
B	500K Ω	1		MR48		D13-133	Attach to 13A per instructions.
14A	500K Ω	1		MR48		D13-133	Phono Volume Control.
B	500K Ω	1		MR48		D13-133	Attach to 14A per instructions.
15A	500K Ω	1		MR48		D13-133	Tone Control.
B	500K Ω	1		MR48		D13-133	Attach to 15A per instructions.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		RESISTANCE	WATTS	CLARK PART No.	
16	1.2 Meg.			BTS-100K	Br.-Red-Grn. Pre. Amp. Grid
17	100K Ω			BTS-2700	Br.-Blk.-Yl. " " Plate Load
18	2700 Ω			BTS-220K	Red-Vl.-Red. " " Cathode
19	220K Ω			BTS-100K	Red-Red-Yl. Grid Decoupling
20	100K Ω			BTS-470K	Br.-Blk.-Yl. 1st Audio Plate Load
21	510K Ω			BTS-10K	Grn.-Br.-Yl. Grid Decoupling
22	10K Ω			BTS-220K	Br.-Blk.-Or. Pre-Amp. Plate Decoupling
23	2700 Ω			BTS-2700	Red-Red-Yl. Driver Grid
24	100K Ω			BTS-100K	Br.-Blk.-Yl. " " Cathode
25	2700 Ω			BTS-2700	Red-Vl.-Red. Phase Inverter Cathode
26	100K Ω			BTS-100K	Br.-Blk.-Yl. " " Plate Load
27	100K Ω			BTS-100K	Br.-Blk.-Yl. " " Grid
28	100K Ω			BTS-47K	Grn.-Br.-Or. Voltage Dropping
29	51K Ω			BTS-220K	Red-Red-Yl. Feedback
30	220K Ω			BTS-220K	Red-Red-Yl. Output Grid
31	220K Ω			BTS-220K	Red-Red-Yl. " " Output
32	220K Ω			AB-250	Output Cathode
33	250 Ω			AB-250	Grn.-Br.-Or. Voltage Dropping
34	51K Ω			AB-20, 000	Bleed Dropping
35	20K Ω			AB-20, 000	Red-Red-Yl. Phono Shunt
36	220K Ω			BTS-220K	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued) **TRANSFORMER (POWER)**

ITEM No.	RATING				REPLACEMENT DATA	
	PRI.	SEC. 1	SEC. 2	SEC. 3	CLARK PART No.	STANCOR PART No.
37	117V AC 6.7A	630V AC 1.05A	5.1V AC 1.8A	6.6V AC 1.6A	P-8013	T22R05

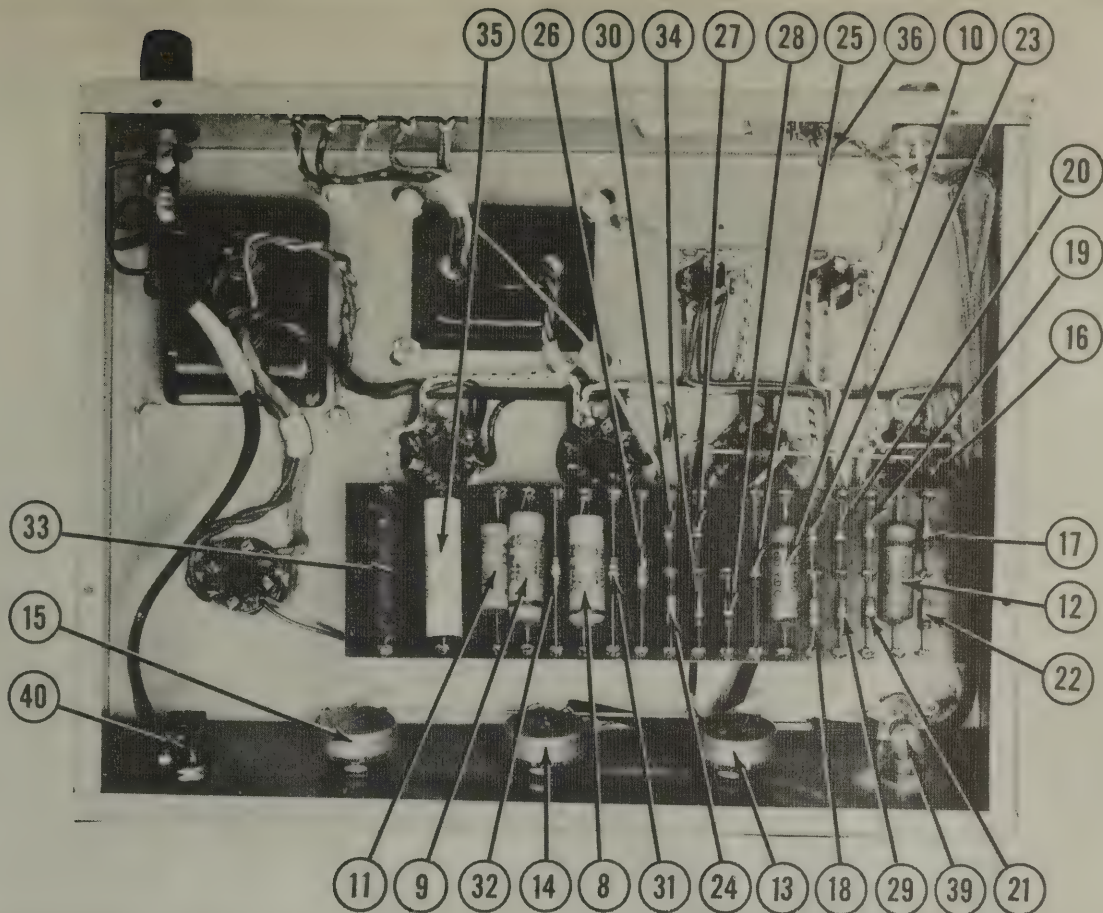
TRANSFORMER (OUTPUT)

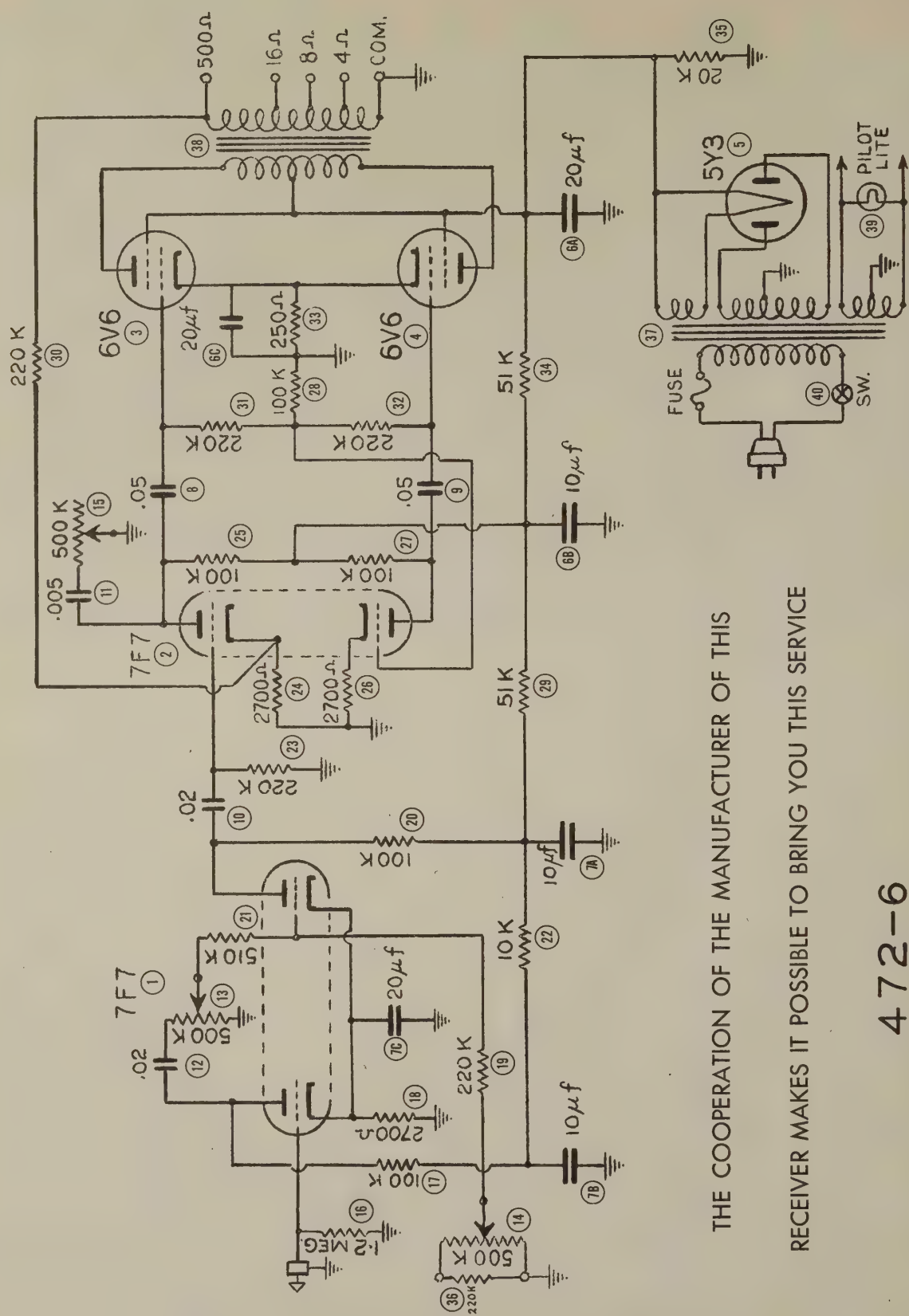
ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	CLARK PART No.	THORDARN PART No.			
38	8Ω 150 500Ω	270Ω 40 25Ω	A-3304*	T22368*			* Drill new mounting holes.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					CLARK	PART No.	
39	Bayonet	6-8	0.15	Brown			Type 47

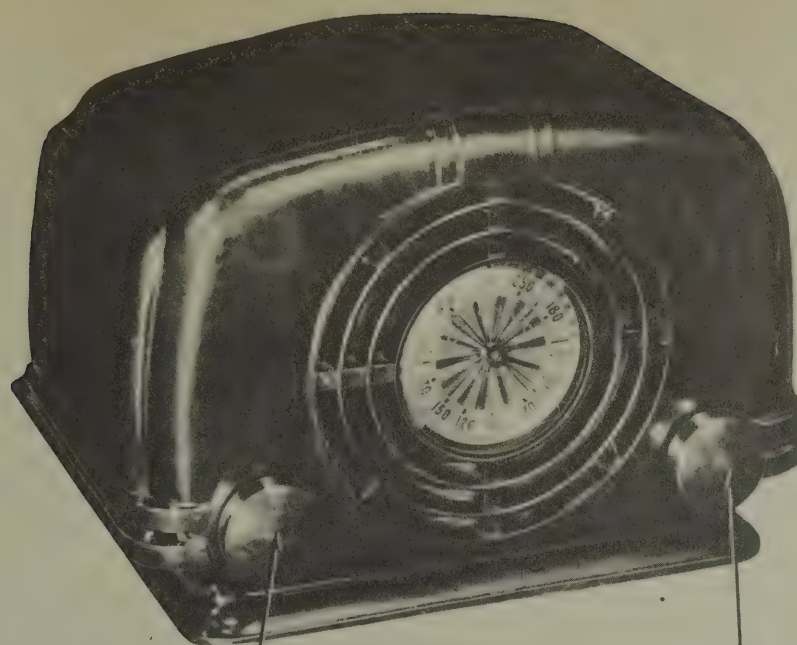
CHASSIS—BOTTOM VIEW





THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

472-6



VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

CORONADO MODEL 43-8160

TRADE NAME Coronado, Model 43-8160
MANUFACTURER "Coronado"- Minneapolis, Minn. - Los Angeles, Calif.
TYPE SET AC-DC Operated Superheterodyne Receiver-Self Contained Loop Antenna
TUBES (FIVE) Types 12SA7 Converter, 12SK7 IF Amp, 12SQ7 Det.-AVC-AF, 50L6GT Power Output
35Z5GT Rectifier

POWER SUPPLY 105-125 Volts AC-DC

RATING .250 Amp. @ 117 Volts AC

TUNING RANGE-BROADCAST 537-1720KC

ALIGNMENT INSTRUCTIONS-READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning control fully counter clockwise and adjust pointer to last reference mark on low frequency end of dial. When aligning, ant. plate should be attached to back of chassis as when in cabinet. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and B-. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to ext. ant. clip. Low side to B-.	455KC	Iron Cores completely out.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy to .001 MFD. to reduce hum modulation.
.1 MFD.	"	1720KC	"	"	A5	Adjust for maximum output.
200 MMFD	"	"	"	"	A6	"
200 MMFD	"	1400KC	Tune for maximum output.	"	Ant. Coil (#32)	Adjust position of coil for maximum output.
200 MMFD	"	1720KC	1720KC	"	A6	Check to see if any change is needed in adjustment of A6. If so recheck ant. coil.

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		CORONADO PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Converter	12SK7	12SK7	8R	
2	1F Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SK7GT	12SK7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		CORONADO PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	
6A	40 CAP. VOLTS		DY-4020-150	EL-24	AF84D4A +	UP4CJ59+	TP308+ Filter
7	150						
8	400	S-4-05	TC-15	TC-15	484-05	DT4S5	TP426 Line Filter
9	400	S-4-02	S-4-02	TC-12	484-02	DT4S2	TP423 Output Plate Bypass
10	600	S-6-004	TC-24	TC-24	684-004	DT6D4	TP407 Audio Coupling
11	600	S-6-002	S-6-002	TC-22	684-002	DT6D2	TP405
12	200	S-4-05	TC-15	TC-15	484-05	DT4S5	TP426
13	400	S-4-2	TC-2	TC-2	484-2	DT4P2	TP429
14	500	M0.5-35	1FM-35	1FM-35	1468-0005	SW5T5	MC245
15	500	M0.5-325	M0.5-325	1FM-325	1468-00025	SW5T25	MC240
16	500	M0.5-45	M0.5-45	1FM-45	1468-00005	SW5Q5	MC225
17	500	M0.5-33	M0.5-33	1FM-33	1468-0003	SW5T3	MC241

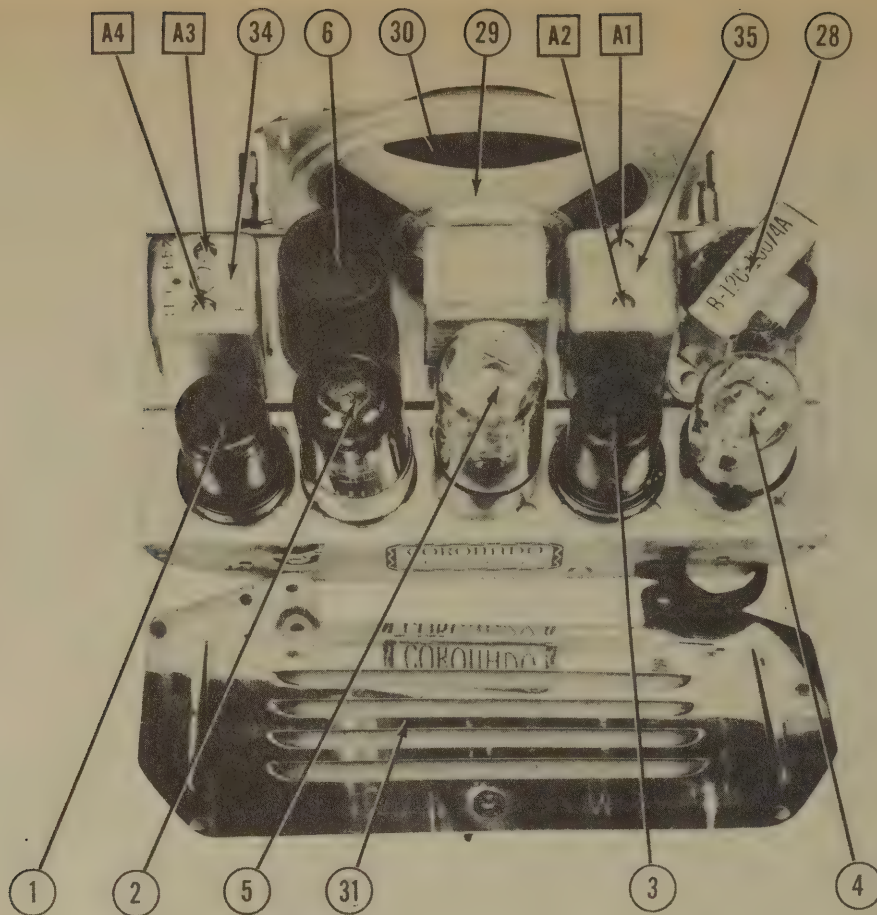
+Do not use bypass section.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		CORONADO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	500KΩ	101272	MK401	D13-133	AM-60-Z	Volume Control.
17B	500KΩ	Not Req.	Not Req.	E 41	KES-3	Attach to 17A per instructions.
17C	Switch		M26		SW-A	" " " " " "

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		CORONADO PART No.	IRC PART No.	IRC PART No.	
18	22KΩ			BTS-22K	Red-Red-Or. Oscillator Grid
19	150KΩ			BTS-150K	Br.-Grn.-Yl. Line Isolation
20	3.5 Meg.			BTS-3.5 Meg.	Or.-Or.-Grn. AVC Network
21	4.7 Meg.			BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
22	150KΩ			BTS-150K	Br.-Grn.-Yl. AF Plate Load
23	220KΩ			BTS-220K	Red-Red-Yl. Output Grid
24	150Ω			BM-150	Br.-Grn.-Br. Cathode
25	1200Ω			ETA-1200	Br.-Red-Red-Filter
26	27Ω			BM-27	Red-Vi.-Blk. Rectifier Ballast
27	33Ω			BM-1-33	Or.-Or.-Blk. Series Filament



PARTS LIST AND DESCRIPTIONS (Continued) TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	THORDARN PART No.	CORONADO PART No.	JENSEN PART No.	
28	230-32 PRI. SEC. 3.7Ω 190Ω .7Ω			B-126-10074	A-3876	722545

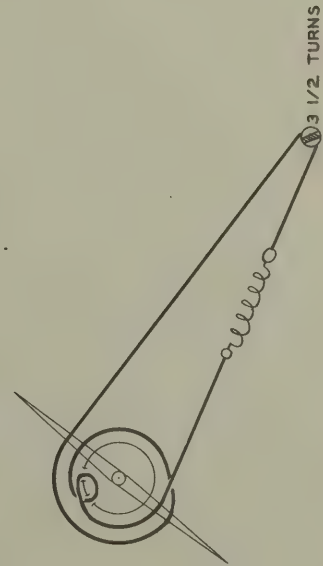
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	CORONADO PART No.	JENSEN PART No.	
29	3.7Ω	8.7Ω	114268	ST-113	Some models may use dynamic speaker.
30	4"	1/2"		Mod. P4-X	

NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

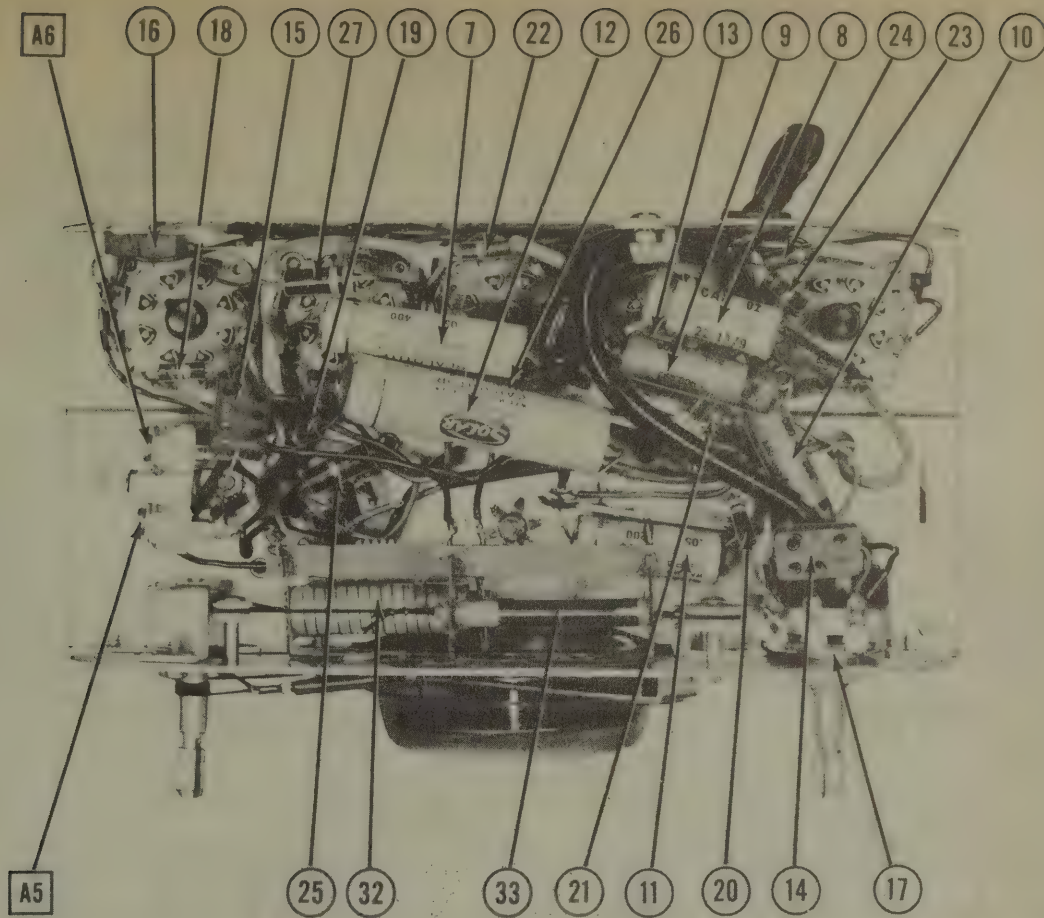
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	CORONADO PART No.	WEISSNER PART No.	
31	Plate Ant.					Items 32 & 33 ganged together and slug tuned.
32	Ant. Coil		9.3Ω			
33	Osc. Coil	.6Ω	6.8Ω			
34	Input IF	40.5Ω	40Ω	108157H	16-6666	
35	Output IF	32Ω	36Ω	108157OR	16-6667	



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	OV.	23 VAC	93 VDC	93 VDC	-5.9 VDC	OV.	11.5 VAC	-4 VDC
2	12SK7GT	OV.	38 VAC	OV.	-4 VDC	OV.	93 VDC	27 VAC	93 VDC
3	12SK7GT	OV.	-6V.DC	OV.	-3 V.DC	-4V.DC	65 VDC	11.5 VAC	OV.
4	50L6GT	OV.	87 VAC	124 VDC	93 VDC	OV.	OV.	38 VAC	6 VDC
5	35Z5GT	OV.	117 VAC	112 VAC	130 VDC	115 VAC	OV.	8 VAC	130V.DC

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	160K Ω	22 Ω	25K Ω	25K Ω	20K Ω	5 Ω	11 Ω	3.1MEG Ω
2	12SK7GT	160K Ω	65 Ω	0 Ω	3.1MEG Ω	0 Ω	25K Ω	54 Ω	25K Ω
3	12SQ7GT	160K Ω	4MEG Ω	0 Ω	630K Ω	3.1MEG Ω	175K Ω	11 Ω	0 Ω
4	50L6GT	INF.	110 Ω	25K Ω	25K Ω	200K Ω	INF.	65 Ω	145 Ω
5	35Z5GT	INF.	135 Ω	130 Ω	25K Ω	165 Ω	INF.	0 Ω	25K Ω

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

CORONADO
MODELS 43-8240, 43-8241



CORONADO
MODELS 43-8240, 43-8241

CORONADO MODEL 43-8240

TRADE NAME		Coronado, Models 43-8240, 43-8241				
MANUFACTURER		"Coronado" - Minneapolis, Minn. and Los Angeles, Calif.				
TYPE SET		AC-DC Operated Superheterodyne Receiver - Self Contained Loop Ant.				
TUBES (FIVE)		Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.				
POWER SUPPLY		105-125 Volts AC-DC		RATING		.245 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST		535-1720KC				
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
To set pointer, turn variable fully closed and set pointer to last reference mark. Use isolation transformer if available. If not connect capacitor in series with low side of signal generator and B-. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. When aligning keep loop and chassis in same relative position as when set is in cabinet.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to start of rear section of variable. Low side to B-.	455KC	Variable fully open.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
.1 MFD.	"	1620KC	"	"	A5	Adjust for maximum output.
	Loop	1400KC	Tune for maximum output.	"	A6	Fashion loop of several turns of wire and radiate signal into set. Adjust for maximum output.

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VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

CORONADO MODEL 43-8351

TRADE NAME Coronado Models 43-8351, 43-8352
MANUFACTURER Coronado, Minneapolis, Minn. & Los Angeles, Calif.
TYPE SET AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (SIX) Types, 12SA7 Converter, 12SK7GT 1st IF Amp., 12SK7GT 2nd IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 105-125 Volts AC-DC

TUNING RANGE—BROADCAST 530-1720KC

RATING .235 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, fully close the variable and set pointer at the last reference mark at the right end of the dial. Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #4 of 12SK7 2nd IF. Amp. (3). Low side to B-.	455KC	High freq. end	Across voice coil	A1, A2.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
.1 MFD.	High side to pin #8 of 12SA7. Low side to B-.	"	" " "	"	A3, A4.	"
.1 MFD.	"	1720KC	" " "	"	A5	"
200 MMF	High side to ext. ant. Low side to chassis.	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

PUSHBUTTON ADJUSTMENTS

1. Insert a long slim screwdriver into the hole in front of one of the pushbuttons and loosen the locking screw.
2. Push button all the way in with screwdriver still engaged in screw.
3. Hold button in firmly and carefully tune in desired station.
4. Tighten the locking screw firmly.
5. Follow same procedure for remaining buttons.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		CORONADO PART No.	STANDARD REPLACEMENT		
1	Converter	12S17	12S17	8R	
2	1st IF Amp.	12SK7GT	12SK7GT	8N	
3	2nd IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SG7	12SG7	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES AND INSTALLATION NOTES
		CORONADO PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	40	119-135	DSB-403020-	TPS150-40-	Filter - Red " - Green " - Yellow
7B	150		150	40	
8	20			401	TP428
9	400	100-1	S-4-1	TC-1	TP423
10	.02	100-26	S-4-02	TC-12	TP423
11	.02	100-26	S-4-02	TC-12	TP423
12	.05	100-25	S-6-002	TC-22	TP405
13	.05	100-9	S-4-05	TC-15	TP426
14	.2	100-110	S-4-1	TC-1	TP429
15	.05	200 100-9	S-4-05	TC-15	TP426
16	.05	200 100-9	S-4-05	TC-15	TP426
17	100	500 129-5	MO-5-31	1FM-31	MC235
18	100	500 129-5	MO-5-31	1FM-31	MC235
19	100	500 129-5	MO-5-31	1FM-31	MC235
20	100	500 129-5	MO-5-31	1FM-31	MC235
21	100	500 129-5	MO-5-31	1FM-31	MC235

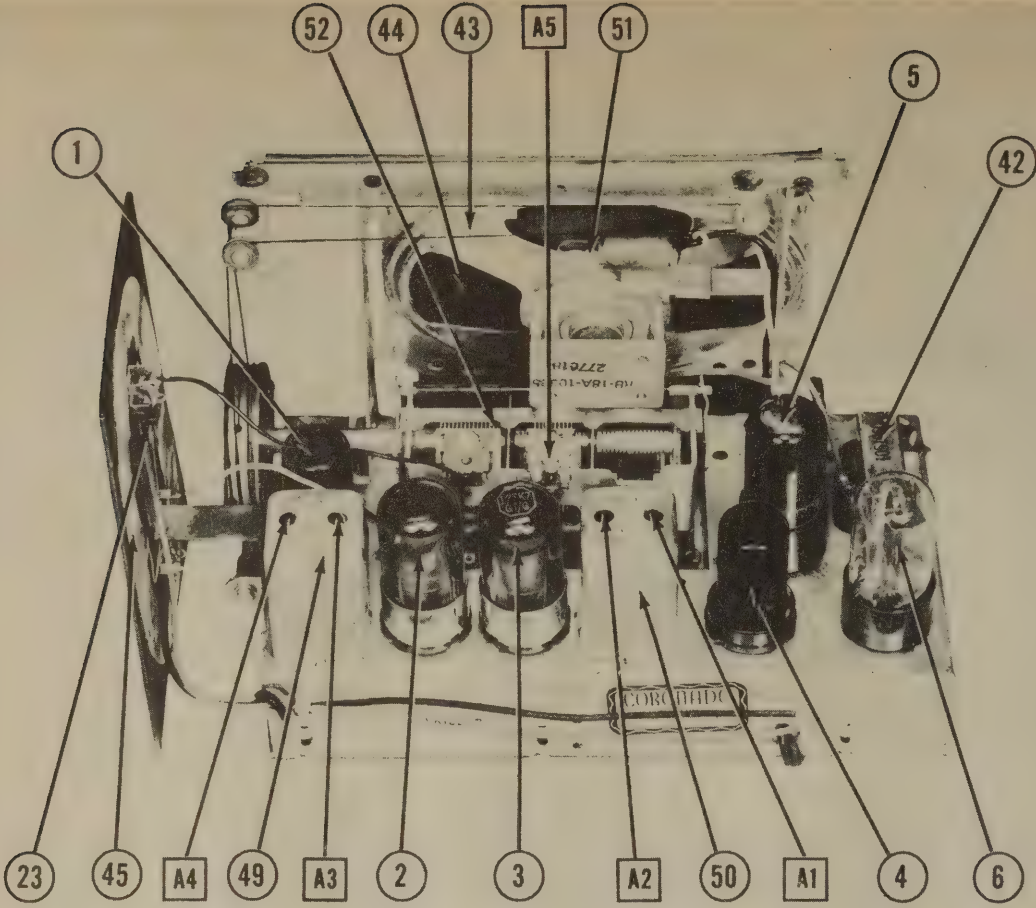
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		CORONADO PART No.	MALLORY PART No.	IRC PART No.	
22	1 Meg.	101-274			Volume Control and Switch

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		CORONADO PART No.	IRC PART No.	
23	1000Ω	C-9B1-13	BTS-1000	Br.-Blk.-Red Antenna Loading
24	1500Ω	A-9B1-26	BTS-150K	Br.-Grn.-Yl. AVC Network
25	220Ω	A-9B1-27	BTS-22K	Red-Red-Or. Oscillator
26	220Ω	A-9B1-54	BM-2-220	Red-Red-Br. 1st IF Cathode
27	1500Ω	A-9B1-26	BTS-150K	Br.-Grn.-Yl. Line Isolation
28	10KΩ	A-9B1-74	BTS-10K	Grn.-Blk.-Or. 1st IF Plate Load
29	500KΩ	A-9B1-62	BTS-470K	Grn.-Blk.-Yl. 2nd IF Grid
30	1000Ω	A-9B1-50	BTS-1000	Br.-Blk.-Red Voltage Dropping
31	100KΩ	A-9B1-34	BTS-3.3 Meg	Or.-Or.-Grn. AVC Network
32	3.3 Meg.	A-9B1-25	BTS-100K	Br.-Blk.-Br. 2nd IF Cathode
33	100KΩ	A-9B1-35	BTS-4.7 Meg	Yl.-Yl.-Grn. 1st AF Grid
34	4.7 Meg.	A-9B1-31	BW-1-150	Br.-Blk.-Grn. Output Grid
35	220KΩ	A-9B1-52	BM-1-220	Br.-Grn.-Br. Output Cathode
36	1 Meg.	A-9B1-42	A-9B2-54	Red-Red-Blk. Rectifier Ballast
37	22Ω	A-9B2-54	A-9B2-63	Red-Red-Br. Filter
38	22Ω	A-9B2-63	C-9B2-44	Br.-Red-Red "
39	22Ω	C-9B2-44		Or.-Or.-Blk. Line Dropping
40	1200Ω			
41	33Ω			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued) TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.		CORONADO PART No.	THORNDARIN PART No.		
42	3500Ω	3.7Ω	270Ω	105-106	A-3856	T22545	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.		CORONADO PART No.	JENSEN PART No.		
43A	PM	3.7Ω		B-18A-10325			
44	4"x6"	VC DIA.	1/2"				Alternate Speaker

R F COILS

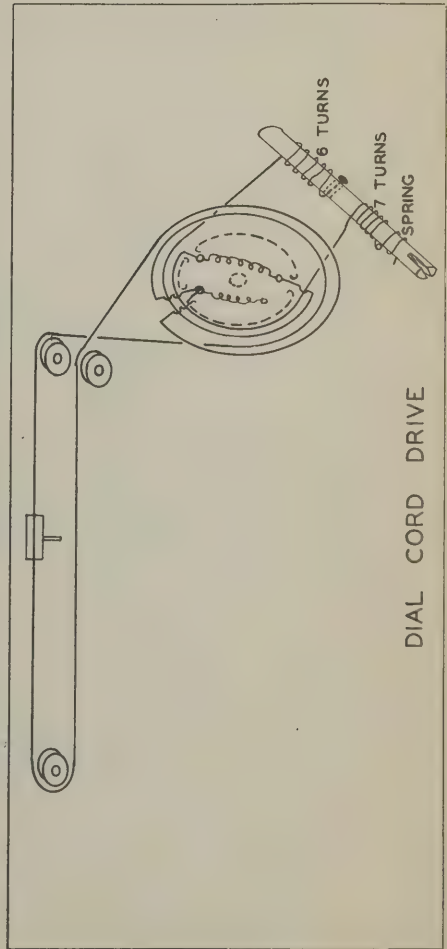
ITEM No.	USE	DC RES.			REPLACEMENT DATA			INSTALLATION NOTES
		PRI.	SEC.		CORONADO PART No.	MEISSNER PART No.		
45	Loop Ant.	1.5Ω	2.2Ω		111-260			
46	Osc. Coil	3Ω	3Ω		110-146			
47	IF Filter Chx	0Ω	0Ω		105-140			
48	Filter Chx	32.5Ω	32.5Ω		105-141			
49	Input IF	25Ω	25Ω		108-140P	16-6658		
50	Output IF				108-145G	16-6660		

DIAL LIGHT

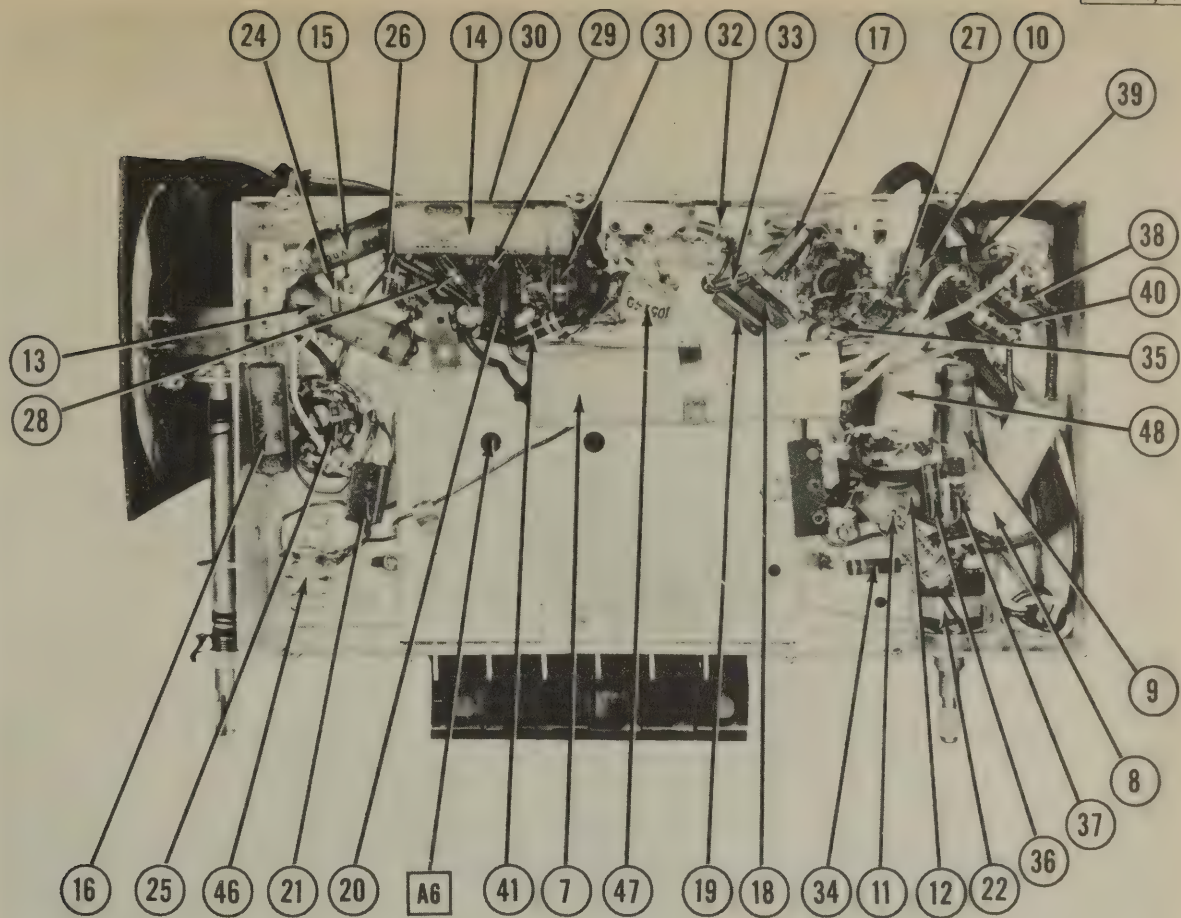
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					CORONADO PART No.		
51	Bayonet	6-8	0.15	Brown	107-249		Type 47

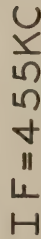
MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
52	2 Gang Var.Cap.	B-8A-10186	(29-492 MUF, 30-216 MUF)



CHASSIS—BOTTOM VIEW



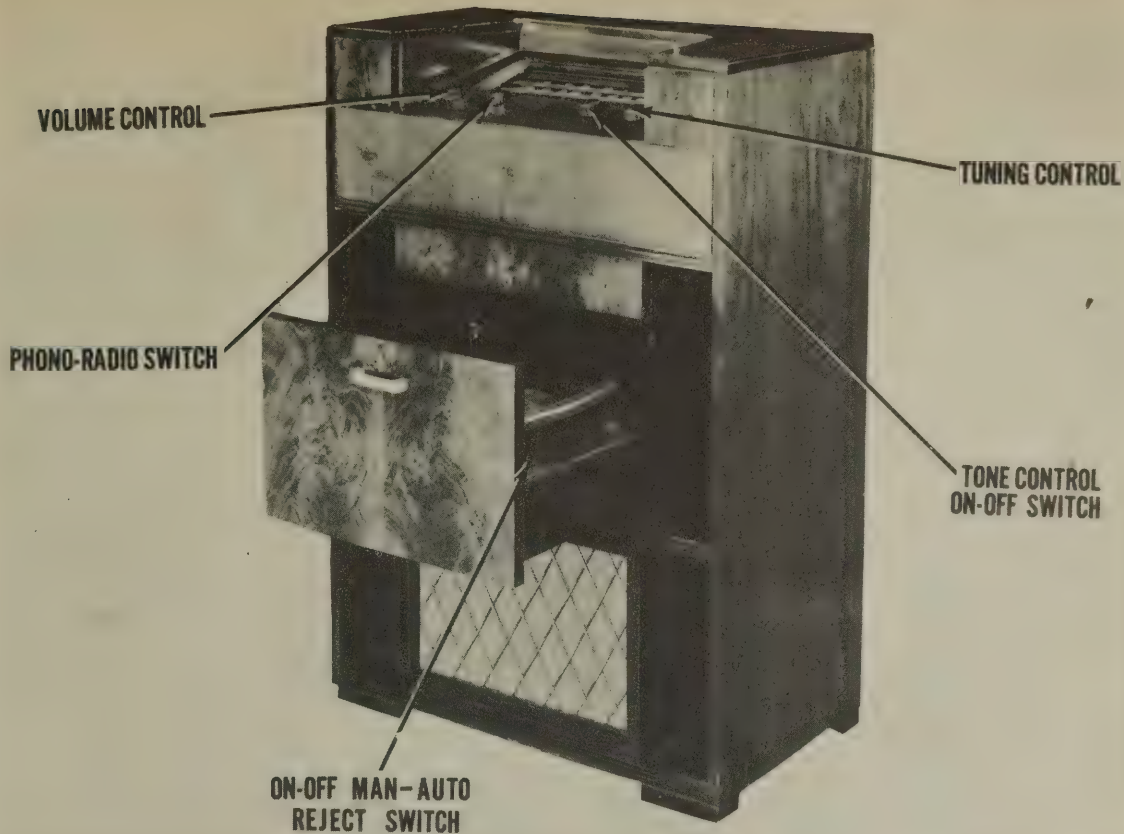


[item]	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	OV.	24 VAC	68V DC	69V DC	-4VDC	OV.	12 VAC	Pin 8
2	12SF6T	OV.	35 VAC	OV.	-1V DC	1.5V DC	68V DC	24VAC	-2V DC
3	12SG6T	OV.	53 VAC	OV.	0V	1.2V DC	77VDC	40 VAC	77VDC
4	12S6GT	OV.	-7V DC	OV.	OV.	OV.	1V DC	42 VAC	OV.
5	35L6GT	OV.	87 VAC	10V DC	77 VDC	OV.	56V DC	OV.	OV.
6	35Z6GT	OV.	117 VAC	13.3VAC	77 VDC	12V AC	109V DC	8 VAC	122V DC

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

		RESOURCES REQUIRED								
	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	40 KA	23 A	40 KA	80 KA	18 KA	1 A	12 A	4ME	
2	12SK7	140 KA	34 A	0 A	4 MEG	190 A	80 KA	23 A	30 KA	
3	12SK7	140 KA	75 A	0 A	390 KA	95 A	80 KA	63 A	80 KA	
4	12SQ7	140 KA	4 5MEG	4 5MEG	4 MEG	4 MEG	280 KA	12 A	0 A	
5	35L6GT	INF.	100 A	80 KA	80 KA	1 MEG	0 A	75 A	135 A	
6	35Z6GT	INF.	25 A	122 A	80 KA	1 MEG	0 A	80 KA	10 A	30 KA

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



TRADE NAME	Crosley, Models 86CR, 86CS
MANUFACTURER	- Crosley Corp., 1329 Arlington St., Cincinnati, Ohio
TYPE SET	AC Operated Combination Automatic Phono.-Multiband Superheterodyne Receiver for Standard Broadcast and FM Reception. Self Contained Loop Antenna.
TUBES (EIGHT)	Types, 7F8 Local & 2nd Oscillator, 6AC7 Mixer, 6SG7 1st IF Amp., 6SG7 2nd IF Amp., 6H6 Discriminator, 6SQ7 Det.-AVC-AF, 6V6GT/G Power Output, 5Y3GT/G Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	.720 Amps. @ 117 Volts AC
FREQUENCY RANGES	- STANDARD BROADCAST - 535-1620KC - SHORT WAVE - 9.4-11.9MC - FM - 87.9-107.9MC

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		CROSLLEY PART No.	STANDARD REPLACEMENT	BASE TYPE	
1	Local & Second Osc.	7F8	7F8	8BW	
2	Mixer	6AC7	6AC7	8N	
3	1st IF Amp.	6SG7	6SG7	8BK	
4	2nd IF Amp.	6SG7	6SG7	8BK	
5	Discriminator	6H6	6H6	7Q	
6	Det.-AVC-AF	6SQ7	6SQ7	8Q	
7	Power Output	6V6GT/G	6V6GT/G	7AC	
8	Rectifier	5Y3GT/G	5Y3GT/G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		CROSLLEY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
9A	20 CAP.	B-137028	DY-404	EL-323		Filter-Red
B	30			EL-20		" -Blue
C	50					" -White
D	25					Cath. Bypass-Brown
10	.01	39001-13	S-6-01	TC-11	684-01	Output Plate Bypass
11	.05		S-4-05	TC-15	484-05	Output Cath. Bypass
12	.033	39001-40	S-8-03	TC-13	484-03	Audio Coupling
13	.003	39001-76	S-6-003	TC-23	684-003	Tone Compensation
14	.01	39001-37	S-4-01	TC-11	484-01	"
15	.033	39001-40	S-6-03	TC-13	484-03	Audio Coupling
16	.003	39001-11	S-6-005	TC-25	684-005	Disc. Filament Bypass
17	.005	39001-7	S-6-001	TC-21	684-001	RF Filter
18	.001	39001-11	S-6-005	TC-25	684-005	2nd IF Plate Decoupl.
19	.005	39001-37	S-4-01	TC-11	484-01	RF Bypass Pwr. Supp.
20	.01		S-4-05	TC-15	484-05	AVC Filter
21	.05		S-6-005	TC-25	684-005	1st IF Plate Decoupl.
22	.005	39001-11	S-6-005	TC-25	684-005	" " Screen Bypass
23	.005		S-4-02	TC-12	484-02	AVC Filter
24	.022		S-6-005	TC-25	684-005	Mixer Plate Decoupl.
25	.005	39001-11	S-6-005	TC-25	684-005	" Screen Bypass
26	.005	39001-11	S-6-005	TC-25	684-005	Osc. Fil. Bypass
27	.005	39001-11	S-6-005	TC-25	684-005	2nd IF Screen Bypass
28	.005	39001-11	S-6-005	TC-25	684-005	Audio Coupling
29	.005		M0.5-32	1F4-32	1468-0002	Disc. Cath. Bypass
30	220		M0.5-45	1F4-45	1468-0005	IF Bypass Diode
31	50		M0.5-31	1F4-31	1468-0001	6AC7 Plate Bypass Cer.
32	100					RF Coupling
33	27					Osc.
34	120					Osc. Feedback
35	10					Osc. Coupling
36	91					RF Coupling
37	30					Fixed Trimmer
38	15					2nd Osc. Grid Cap.
39	10					RF Coupling
40	27					Fixed Trimmer
41	82					
42	30					
43	50					
92	50					

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		CROSLLEY PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
43A	2.5 Neg.	B135734				Tone Control.
B Shaft	1	Not Req.				Attach to 43A per instructions.
C Switch			TM257			Volume Control.
44A	3.5 Neg.	B135783A				Attach to 44A per instructions
B Shaft	1	Not Req.				

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		RESISTANCE	WATTS	CROSLLEY PART No.	
45	560KΩ			39014-58	Grn. Blue-Yl. Second Osc. Plate Load.
46	56KΩ			39014-46	Grn. Blue-Yl. Oscillator Grid.
47	22KΩ			39014-41	Red-Red-Or. Oscillator Grid
48	1 Meg.			39294-31	Br.-Blk.-Grn. Mixer Grid
49	120KΩ			39014-50	Br.-Red-Yl. Screen Drooping
50	10KΩ			39294-15	Br.-Blk.-Or. Oscillator Plate Load
51	220Ω			39294-31	Red-Red-Red Mixer Plate Decoupling
52	1 Meg.			39014-45	Br.-Blk.-Grn. AVC Network
53	47KΩ			39294-15	Yl.-Yl.-Or. 1st IF Screen Drooping
54	220Ω			39294-24	Blue-Gray-Or. " Plate Decoupling
55	68KΩ			39294-30	Blue-Gray-Yl. " "
56	680KΩ			39014-42	Red-Yl.-Or. 2nd IF Screen Drooping
57	27KΩ			39294-15	Red-Red-Yl. Diode Load
58	220Ω			39294-27	Br.-Blk.-Yl. Discriminator Load
59	220KΩ			39294-25	Br.-Blk.-Yl. " RF Filter
60	100KΩ			39294-25	Br.-Blk.-Blue 1st AF Grid
61	100KΩ			39294-37	Yl.-Yl.-Yl. " Plate Load
62	10 Meg.			39014-57	Yl.-Yl.-Or. Tone Compensation
63	470KΩ			39014-45	Yl.-Yl.-Yl. Output Grid
64	47KΩ			39014-57	Red-Red-Br. " Cathode
65	470KΩ			39015-17	" Filter
66	220Ω			M-137021	
67	220Ω			M-137021	
68A	400Ω			AB-750	
68B	700Ω			AB-750	
69	120KΩ			39294-50	Br.-Red-Yl. Oscillator Plate Drooping
70	1 Meg.			39294-31	Br.-Blk.-Grn. Antenna Isolation
71	100KΩ			39294-13	Br.-Blk.-Red FM Antenna Coil Shunt

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA		
		CROSLLEY PART No.	STANCOR PART No.	THORDARSON PART No.
72	117V AC 6.60V AC 5.3V AC 6.6V AC @.72A @.086A @ 1.8A @ 2.7A	B-1355336	P-6012	T22R04

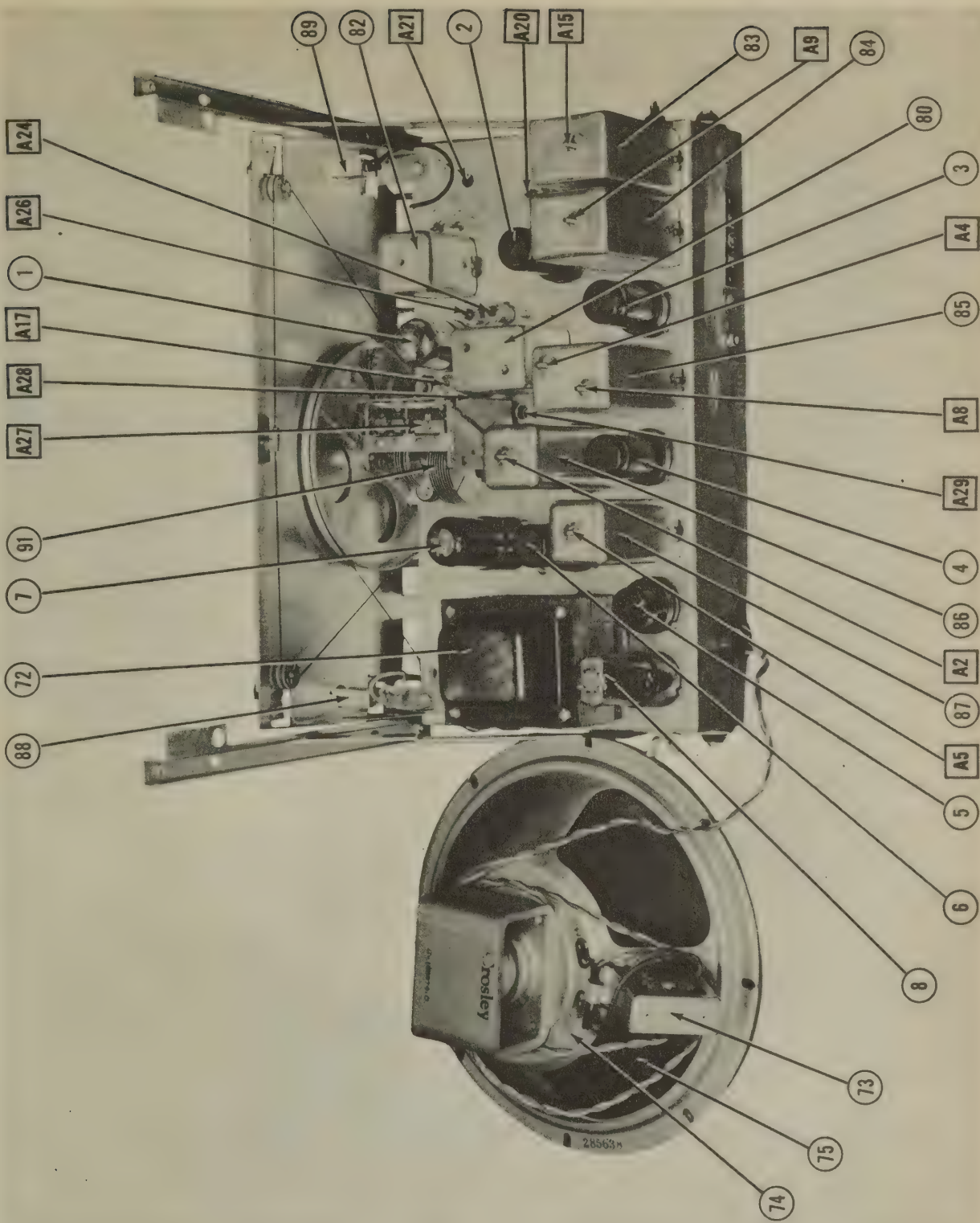
TRANSFORMER (OUTPUT)

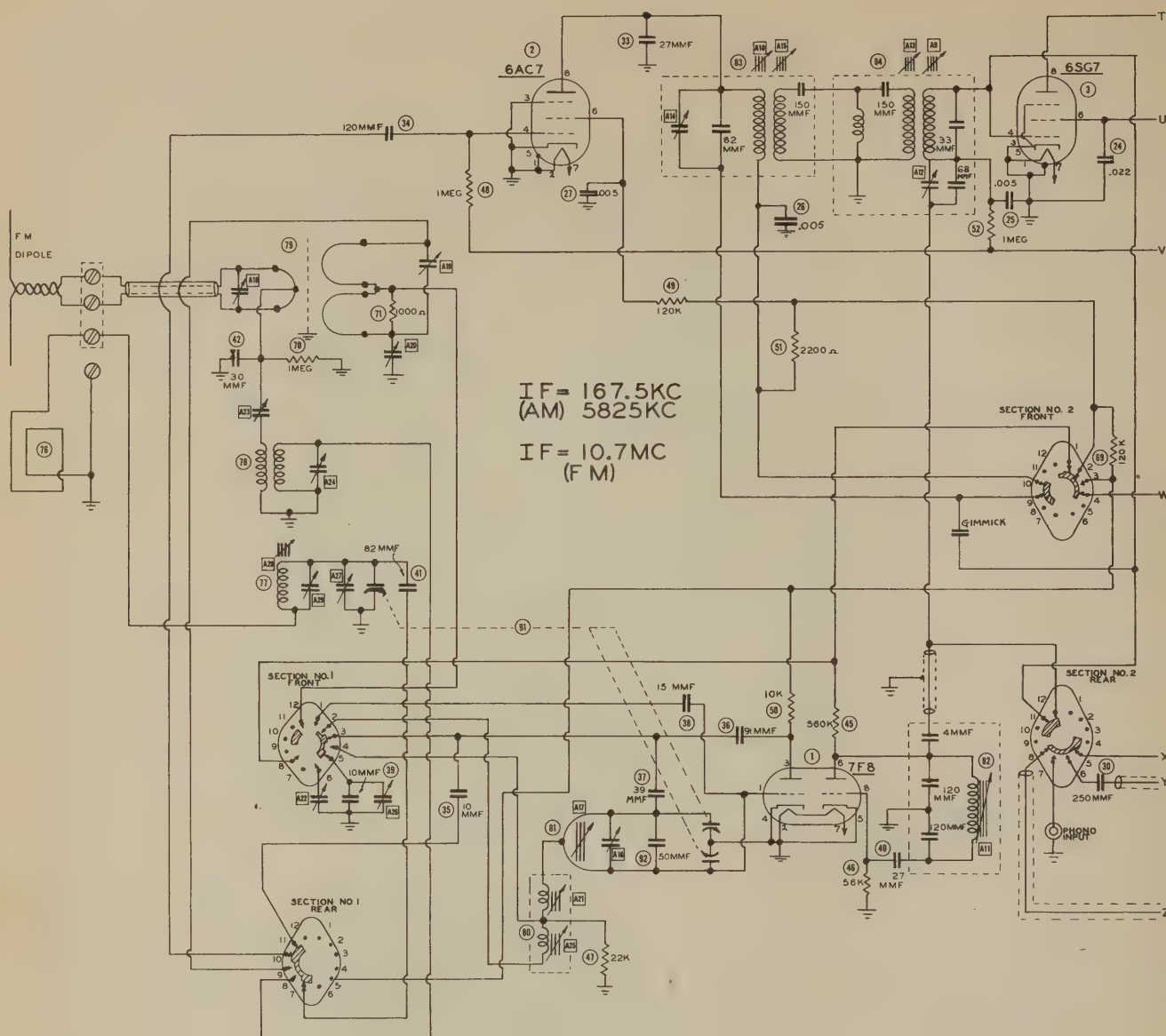
ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.		CROSLLEY PART No.	STANCOR PART No.	THORDARN PART No.	
	PRI.	SEC.	PRI.	SEC.				
73	4000Ω	3.9Ω	270Ω	.45Ω	Part of C-136974	A-3856	T22846	

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA			INSTALLATION NOTES
		CROSLLEY PART No.	JENSEN PART No.	THORDARSON PART No.	
74	FIELD P.W. VC IMP. 3.9Ω		ST-120 + Mod. P10-S		+ Change output transformer to match 8Ω voice coil.
75	92" COME DIA. VC DIA. 1"				NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

CHASSIS—TOP VIEW





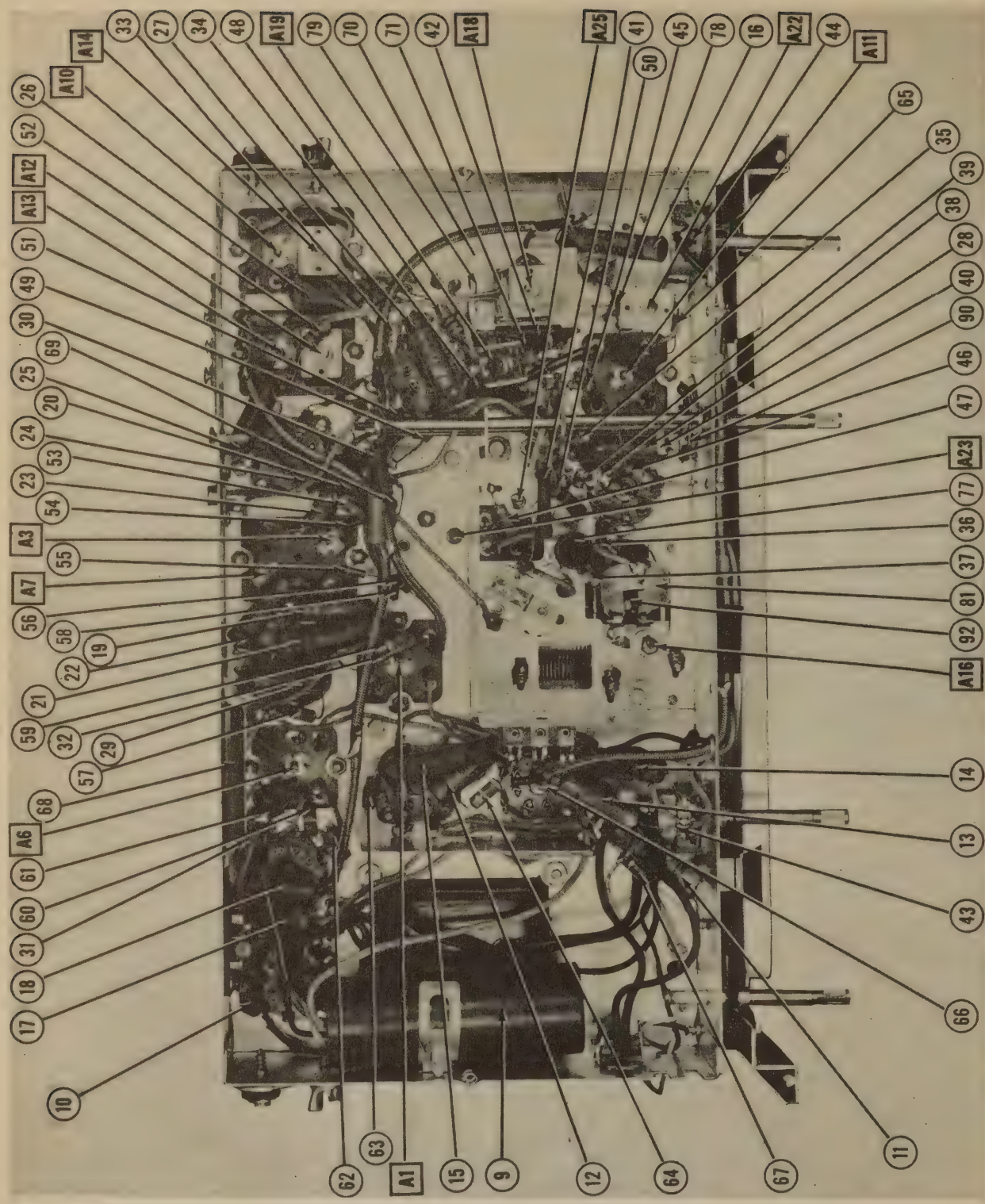
VOLTAGE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	7F8	-3.4V.DC	0V.	57V.DC	0V.	0V.	30V.DC	6.6V.AC	-4V.DC
2	6AC7	0V.	0V.	0V.	-1V.DC	0V.	97V.DC	6.6V.AC	270V.DC
3	6SG7	0V.	0V.	0V.	-7V.DC	0V.	133V.DC	6.6V.AC	250V.DC
4	6SG7	0V.	0V.	0V.	-7V.DC	0V.	150V.DC	6.6V.AC	240V.DC
5	6H6	0V.	0V.	-4V.DC	0V.	-4V.DC	0V.	6.6V.AC	0V.
6	6SQ7	0V.	-6V.DC	0V.	-4V.DC	0V.	100V.DC	6.6V.AC	0V.
7	6V6GT	0V.	0V.	300V.DC	285V.DC	0V.	0V.	6.6V.AC	25V.DC
8	5Y3GT	0V.	350V.DC	0V.	330V.AC	0V.	330V.AC	0V.	350V.DC

472-10

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement. The above figures are all that can be obtained with equipment usually available.

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

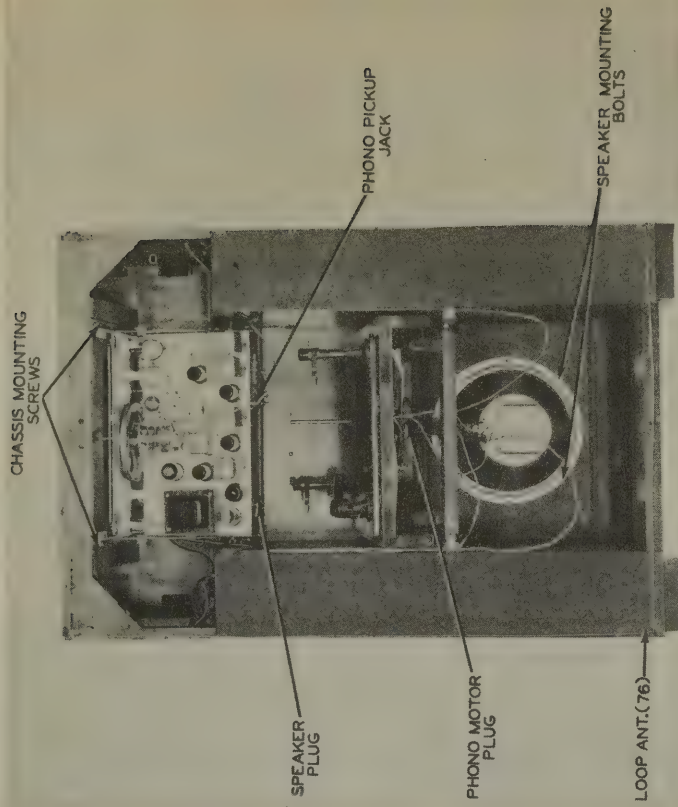
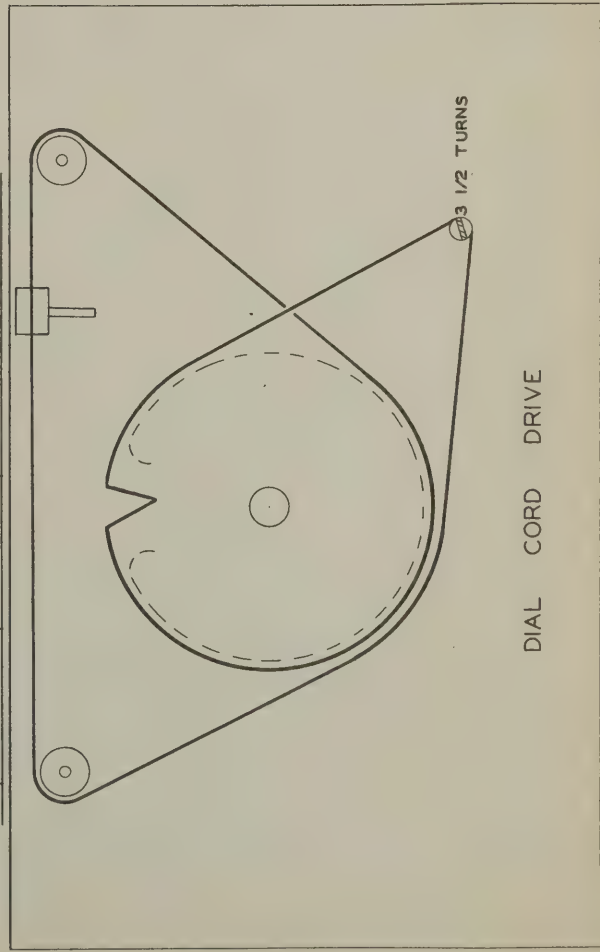
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	CROSLLEY PART No.	MEISSNER PART No.	
76	Loop Ant. Coil		.02	W-137143		Items 80A, 80B wound on same form.
77	BC Ant. Coil		7.52	AW-136511		
78	SW Ant. Coil	.52	.52	AB-136444		
79	FM Ant. Coil	.02	.02	AC-136171		
80A	BC Osc. Coil		.72	AC-136509		* Resistance includes both primaries and both secondaries.
80B	SW Osc. Coil		.22			
81	FM Osc. Coil		.02	W-136179		
82	2nd Osc. Coil		.52	AC-136390		
83	1st Ant-FM IF	.52	.02	AC-136264		
84	2nd Ant-FM IF	.02	.52	AC-136081		
85A	3rd AM IF	302 *	322 *	AC-136276		
85B	3rd FM IF					
86	4th AM IF	282		AC-136261		
87	D1sc. IF	.22		AC-136260		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	CROSLLEY PART No.	
88	Bayonet	6-8	0.15	Brown		Type 47
89	Bayonet	6-8	0.15	Brown		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	CROSLLEY PART No.	NOTES
90	Band Switch	C-136181	
91	5-gang Var. Cap. Transmission Line	C-136496 W-137143	(16-410 MMF, 12-57 MMF, 12-57 MMF) 752



DISASSEMBLY INSTRUCTIONS

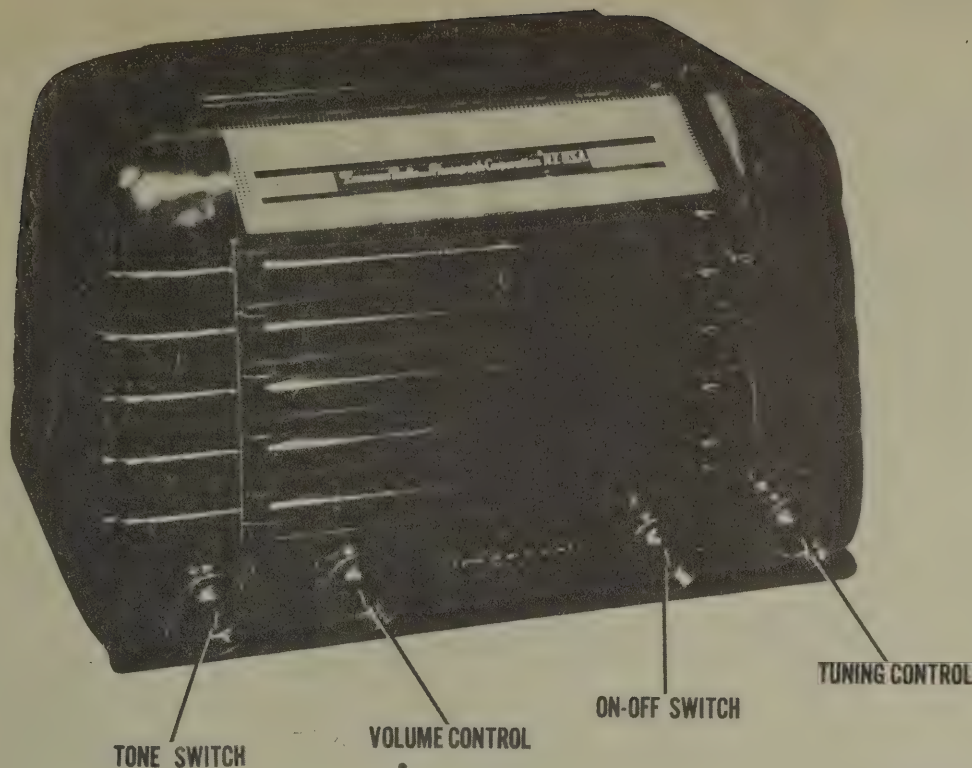
1. Remove four push-on type knobs.
2. Remove speaker plug from chassis.
3. Remove phono-pickup jack from chassis.
4. Remove loop and FM Ant. dipole leads from antenna terminal strip.
5. Remove phono-motor plug.
6. Release clamps holding speaker and phono motor cable.
7. Release clamp holding power cord.
8. Remove two Phillips head screws from top of cabinet holding chassis.
9. Remove two Phillips head screws from braces holding chassis. Remove chassis.
10. Remove two self tapping screws holding panel board on bottom of chassis. Remove board.
11. Remove four hex nuts and washers holding speaker. Remove speaker.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn variable fully closed and set pointer at the 200 mark on the FM dial. Set volume control at maximum volume, tone control at maximum treble and keep output of signal generator no higher than is necessary to obtain output reading. Use a vacuum tube voltmeter, preferably zero center scale, as an output indicator for all FM adjustments. For adjustment of A20 connect 5 feet of 75 ohm line to the dipole terminals. Connect a 20 microampere microammeter in series with a germanium crystal type 1N34 to the end of this line. Adjust for minimum radiation. For the FM dummy ant. connect 39 ohm resistors in series with both the high and low sides of the signal generator and connect to the dipole terminals. Connect low side directly to chassis. Before adjusting A15 and A17 (FM oscillator) set signal generator to 87.9 MC and check to see if receiver tunes to, or through, signal. (Channel 200). Set signal generator to 107.9 MC and see if receiver tunes through signal. (Channel 300). If receiver tunes through these signals and calibration is correct, FM oscillator adjustment is not needed. To increase the range of the FM oscillator, A17 should be turned clockwise and to decrease frequency range A17 should be turned counter-clockwise. Apply speaker cement to all air trimmer adjustment screws after alignment is completed.

READ ALIGNMENT INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	REMARKS
.1 MFD.	High side to pin #4 of 6AG7 2nd IF Amp. (4). Low side to pin #1 of same tube.	167.5KC	SW	Variable fully open.	Across voice coil	Adjust for maximum output
.1 MFD.	High side to pin #4 of 6AG7 1st IF Amp. (3). Low side to pin #1 of same tube.	"	"	"	"	"
.30 MFD.	High side to pin #4 of 6AG7 2nd IF Amp. (4). Low side to pin #1 of same tube.	10.7 MC	FM	"	VTVM connected at junction of disc. diode resistors (60K61) and chassis	"
.30 MFD.	"	"	"	"	VTVM connected to pin #4 of 6H6 and chassis.	Adjust for zero output. Swing signal generator 80KC above and 80KC below 10.7 MC. Record readings on VTVM at each of these settings. They should be equal but of opposite polarity. If they are not equal, repeat last two steps. It may be necessary to adjust A6 slightly to get these readings equal. Adjust for maximum output
.30 MFD.	High side to pin #4 of 6AG7 1st IF Amp. (3). Low side to pin #1 of same tube.	"	"	"	VTVM connected at junction of disc. diode resistors (60K61) and chassis.	A7,A8
.30 MFD.	High side to pin #4 of 6AG7. Low side to pin #1 of same tube.	"	"	"	VTVM connected to pin #4 of 6AG7 2nd IF Amp. (4) and chassis	A9,A10
.30 MFD.	High side to pin #4 of 6AG7 1st IF Amp. (3). Low side to pin #1 of same tube.	5825 KC	SW	"	Across voice coil	Shunt 2200Ω resistor across primary of 1st 1675 KC IF trans. Adjust All for maximum output.
.30 MFD.	High side to input of 2nd 5825KC IF trans. Low side to ground terminal on same trans.	"	"	"	"	A12,A13 With shunt still connected adjust for maximum output. Repeat A11,A12 and A13 in that order until no further improvement can be made.

READ ALIGNMENT INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
40 MFD.	High side to pin #4 of 6AC7. Low side to pin #1 of same tube.	107.9 MC	FM	300	VTVM connected to pin #4 of 6AG7 2nd IF Amp.(4) and chassis.	A14, A15	Adjust for maximum output, then remove 2200Ω shunt.
75Ω dummy antenna in place of prealignment structures	To dipole terminals.	107.9 MC		300		A16	FM oscillator adjustment may not be necessary. (See prealignment instructions) Adjust for maximum output
"	"	87.9 MC	"	200		A17	Adjust for maximum output. Recheck A16 at 107.9 MC.
"	"	102. MC	"	Tune for maximum output.	"	A18	Adjust for maximum output
"	"	92 MC	FM	215	See pre-alignment instructions	A19	"
						A20	Adjust for minimum reading on microammeter. It moved more than 1/4 turn, re-check A18 & A19.
.30 MFD.	High side to one FM dipole term. Low side to chassis.	11.8 MC	SW	11.8	Across voice coil	A21	Adjust for maximum output
.30 MFD.	"	9.6 MC	"	9.6	"	A22	Adjust for maximum output. Recheck A21 at 11.8 MC.
.30 MFD.	"	11.8 MC	"	Tune for maximum output.	"	A23	Adjust for maximum output
.30 MFD.	"	9.6 MC	"	"	"	A24	"
.30 MFD.	"	Tune signal generator to null point (Approx. 10.7 MC)	FM	200	"	A25	Adjust for better null point. This adjustment must be very slight.
.30 MFD.	High side to ext. ant. terminal. Low side to chassis. Connect 100KΩ resistor across loop terminals.	1600 KC	BC	1600 KC		A25	Adjust for maximum output
.30 MFD.	"	535 KC	"	Low freq. end	"	A26	Adjust for maximum output. Recheck A25 at 1600 KC.
.30 MFD.	Loop	1400 KC	"	Tune for maximum output.	"	A27	Install chassis in cabinet. Remove 100KΩ resistor from loop terminals and connect loop. Connect output of signal generator to a few turns of wire and radiate signal into receiver loop.
"	"	600 KC	"	"	"	A28	Adjust for maximum output.
"	"	5025 KC	"	Low freq. end	"	A29	Adjust for minimum output.



EMERSON MODEL 515

TRADE NAME Emerson, Models 515, 516						
MANUFACTURER Emerson Radio & Phono Corp., 111 8th Ave., New York, N.Y.						
TYPE SET AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna						
TUBES (SIX) Types, 6SS7 RF Amp., 12SA7 Converter, 6SS7 IF Amp., 12SQ7 Det.-AVC-AF; 50L6GT Power Output, 35Z5GT Rectifier.						
POWER SUPPLY 110-125 Volts AC DC						
TUNING RANGE—BROADCAST 540-1620KC RATING .255 Amp. @ 117 Volts AC						
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
Use isolation trans. if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to sta- tor of rear sec- tion of variable. Low side to B-.	455KC	High freq. end. (Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modu- lation.
.1 MFD.	"	"	Low freq. end. (Variable fully closed)	"	A5	Adjust for minimum output.
200 MMF.	High side to ext. ant. lead. Low side to chassis.	1620KC	High freq. end. (Variable fully open)	"	A6	Adjust for maximum output.
200 MMF.	"	1400KC	Tune for maxi- mum butput.	"	A7	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA			RMA BASE TYPE	INSTALLATION NOTES
		EMERSON PART No.	STANDARD REPLACEMENT			
1	RF Amp.	6SS7	6SS7		8N	
2	Converter	12SA7	12SA7		8R	
3	IF Amp.	6SS7	6SS7		8N	
4	Det.-AVC-AF	12SQ7	12SQ7		8Q	
5	Power Output	50L6GT	50L6GT		7AC	
6	Rectifier	35Z5GT	35Z5GT		6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		EMERSON PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNEILL-DUBILIER PART No.	
7A	30 CAP.	925110	D5B-5030-150	TA-530	PRSA150-40-40	BRD3515	2N520 Filter - Red
8	150	920030	S-4-05	TC-15	484-05	DT4S5	TP426 Line Filter
9	200	920050	S-4-2	TC-2	484-2	DT4P2	TP429 Line Isolation †
10	400	920020	S-4-02	TC-12	484-02	DT4S2	TP423 Output Plate Bypass
11	600	920020	S-4-02	TC-12	484-02	DT4S2	TP423 Audio Coupling
12	600	920010	S-6-002	TC-22	684-002	DT6D2	TP405 Tone Compensation
13	600	920010	S-6-002	TC-22	684-002	DT6D2	TP405 Audio Coupling
14	200	920060	S-4-05	TC-15	484-05	DT4S5	TP426 AVC Filter
15	400	920030	S-4-05	TC-15	484-05	DT4S5	TP426 RF Bypass Pwr. Supp.
16	200	920060	S-4-05	TC-15	484-05	DT4S5	TP426 RF Screen Bypass
17	600	920010	M0.5-32	1FM-32	1468-0002	5W5T2	MC237 Ant. Coupling *
18	500	910000	M0.5-32	1FM-32	1468-0001	5W5T1	MC235 IF Bypass Vol. Cont.
19	110	500	910010	1FM-31	1468-0001	5W5T1	MC235 RF Coupling
20	110	500	910010	1FM-31	1468-0001	5W5T1	MC235 RF Coupling
21	220	500	910000	1FM-32	1468-0002	5W5T2	MC237

*Not used in all models.
†May be 600 volts in some models.

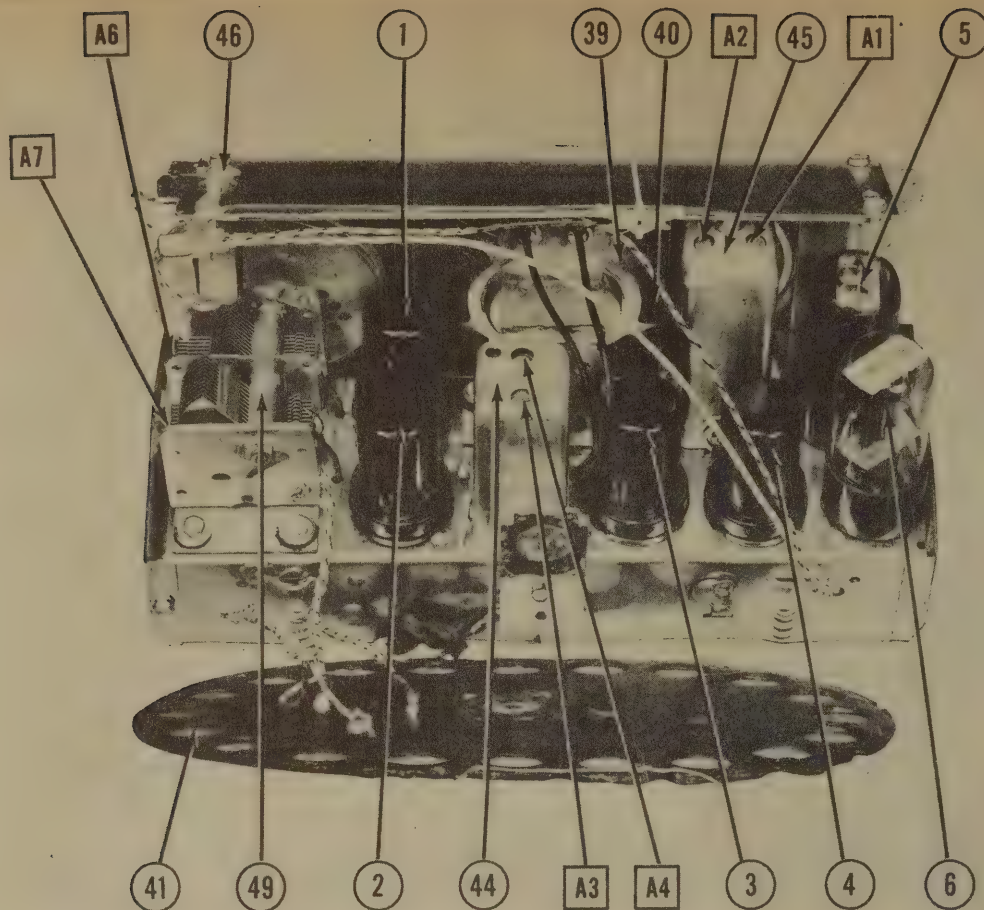
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		EMERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22A	500KΩ	29015	UM156	D11-133	AM-58-S	Volume Control
B	Shaft	Not Req.	SS25	E	KSS-3	Attach to 22A per instructions.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		EMERSON PART No.	IRC PART No.		
23	10KΩ	310730	BTS-10K		Br.-Blk.-Or. RF Plate Load
24	22KΩ	310810	BTS-22K		Red-Red-Or. Converter Grid
25	39KΩ	310870	BTS-39K		Or.-White-Or. RF Screen Dropping
26	470KΩ	321130	BTS-470K		V1.-V1.-Y1. RF Grid
27	22KΩ	310810	BTS-22K		Red-Red-Or. Oscillator Grid
28	15 Meg.	397000	BTS-15 Meg.		Br.-Grn.-Blue AVC Network
29	3.5 Meg.	321330	BTS-3.5 Meg.		Or.-Or.-Grn. AVC Network
30	10 Meg.	321330	BTS-10 Meg.		Br.-Blk.-Blue 1st AF Grid
31	470KΩ	321130	BTS-470K		V1.-V1.-Y1. 1st AF Plate Load
32	470KΩ	321130	BTS-470K		V1.-V1.-Y1. Output Grid
33	15KΩ	321130	BTS-15K		Br.-Grn.-Br. Output Cathode
34	100KΩ	340290	BM-2-150		Br.-Blk.-Red Filter
35	15KΩ	340050	BM-2-15		Br.-Grn.-Blk. Rectifier Ballast
36	10KΩ	340010	BM-2-10		Br.-Blk.-Blk. Series Pilot Light
37	220KΩ	321050	BTS-220K		Red-Red-V1. Line Isolation

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	EMERSON PART No.	STANCOR THORDARN PART No.	
38	PRI. SEC. 24000 4.62	PRI. SEC. 2300 .82	734080	A-3876#	#Add extra filter to reduce hum level.

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		EMERSON PART No.	JENSEN PART No.	
39	FIELD VC IMP.	180008		
40	4"x6" 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

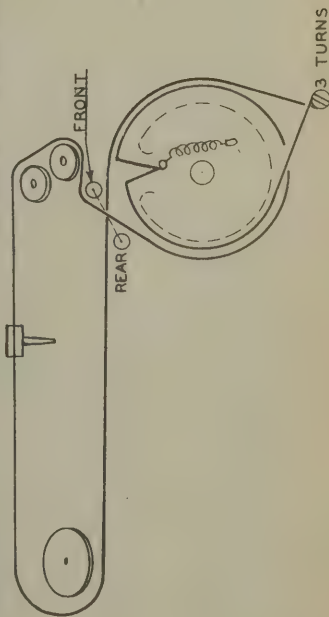
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	EMERSON PART No.	MEISSNER PART No.	
41	Loop	12	1.50	700010		
42	Osc. Coil	12	6.50	716070		
43	If Wave Freq	600		705060		
44	Input If	350	230	720360		
45	Output If	280		720390		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	EMERSON PART No.	
46	Bayonet	6-5	0.15	Brown		Type 47

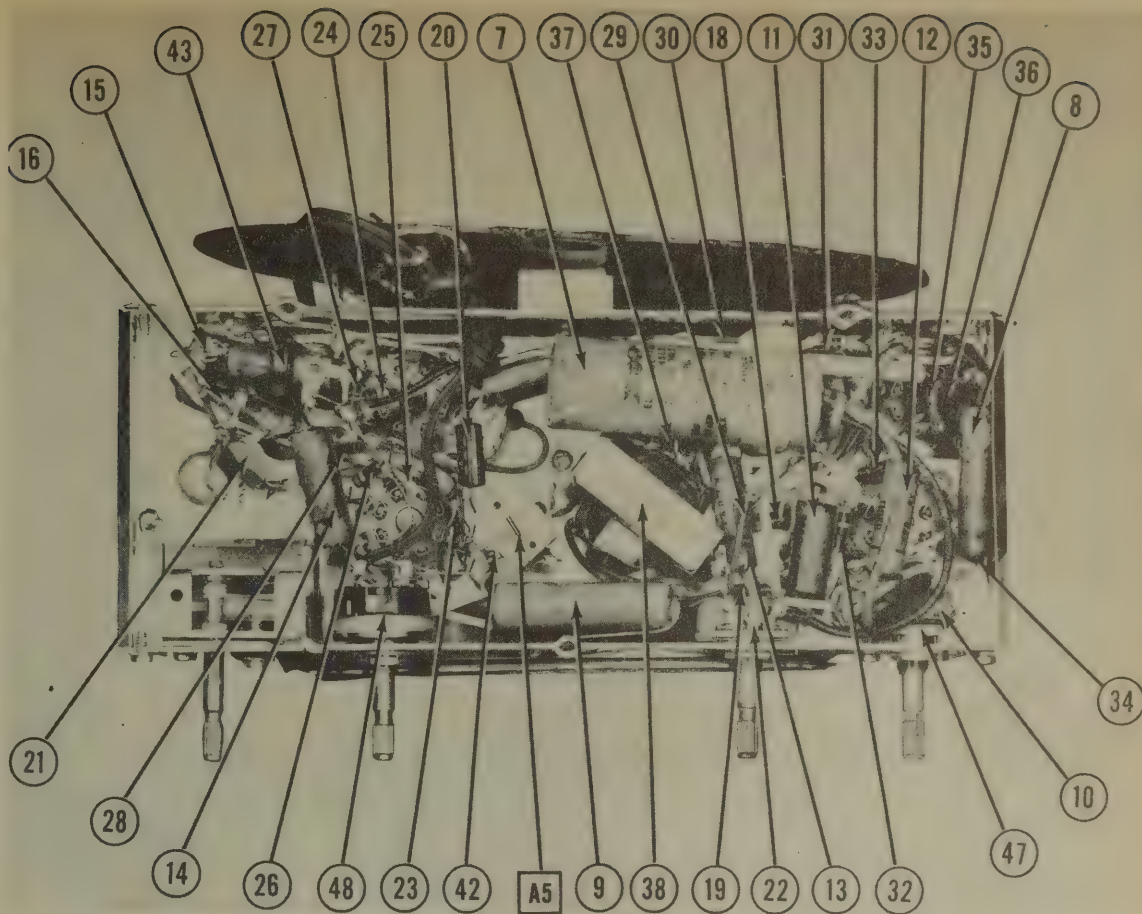
MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
47	Tone Switch		
48	On-Off Switch		
49	Tuning Cap.	900070	(27-385 MUF, 22-185 M.F.)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



GAROD
MODELS 5D, 5D-2



GAROD MODEL 5D-2

GAROD
MODELS 5D, 5D-2

TRADE NAME	Garod, Models 5D, 5D-2
MANUFACTURER	Garod Radio Corporation, 70 Washington St., Brooklyn, N.Y.
TYPE SET	Three Power Portable Superheterodyne Receiver-Self Contained Loop Antenna
TUBES (FIVE)	Types, 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output, 117Z3 Rect.
POWER SUPPLY	105-125 Volts AC-DC or (5) 1½ Volt "A" Batteries (Eveready #950 or equiv.) and (1) 67½ Volt "B" Battery (Eveready #467 or equiv.)
RATING	.155 Amp. @ 117 Volts AC or 61 MA @ 7.7 Volts DC & 8 MA @ 67½ Volts DC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Whenever possible use battery power for alignment. If a-c power is used, use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of front section of variable. Low side to chassis.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without isolation transformer reduce dummy ant. to 200 MMF. to reduce hum modulation.
	Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into set. Adjust for maximum output.
	"	1500KC	Tune for maximum output.	"	A6	Adjust for maximum output. Install in cabinet and check calibration. If necessary remove plugs in end of case and repeat last two steps to correct calibration.

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		GAROD PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	Det.-AVC-AF	1S4	1S4	6AU	
4	Power Output	384	384	7BA	
5	Rectifier	117Z3	117Z3	4ER	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		GAROD PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	CAP. 70	5-400-3					Filter
B	30						
C	150						
7	25						
8	.05						
9	.05						
10	.005						
11	.01						
12	.05						
13	.01						
14	.02						
15	.01						
16	.1						
17	50						
18	100						

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		GAROD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
19A	1 Meg. B Shaft	8-200-2	MK402#	D13-137#	AM-63-Z#	Volume Control
C	Switch	Not Req.	Not Req.	E 42	KSS-3	Attach to 19A per instructions.
					SM-A2	

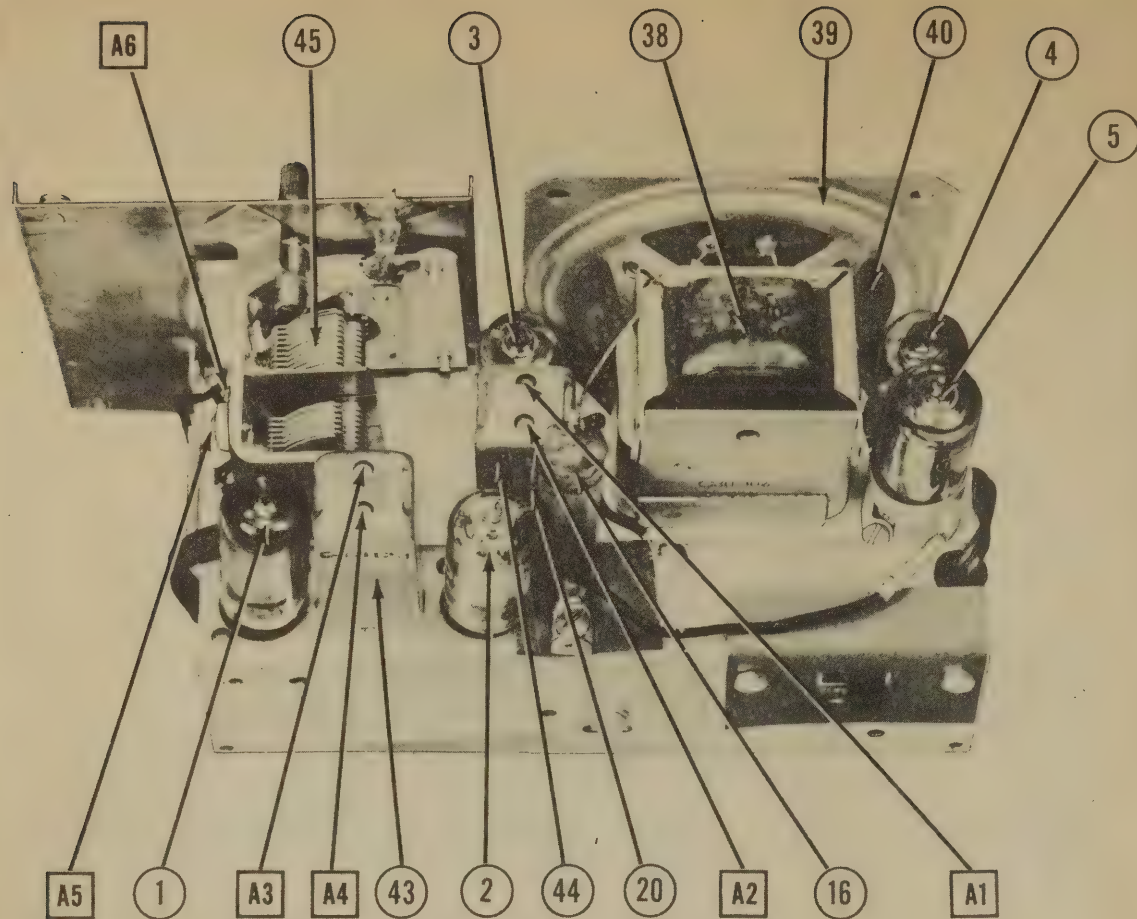
#Install a 47K Ω resistor in series with the right hand terminal of the original control. (Control viewed from shaft side, terminals down.)

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		GAROD PART No.	IRC PART No.	IRC PART No.	
20	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
21	100K Ω			BTS-100K	Br.-Blk.-Yl. Oscillator Grid
22	2.2 Meg.			BTS-2.2 Meg.	Red-Red-Grn. IF Grid
23	4700 Ω			BTS-4700	Yl.-Vi.-Red Voltage Dropping
24	1 Meg.			BTS-1 Meg.	Brn.-Blk.-Grn. AVC Network
25	10 Meg.			BTS-10 Meg.	Br.-Blk.-Blue AF Grid
26	4.7 Meg.			BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen Dropping
27	1 Meg.			BTS-1 Meg.	Er.-Blk.-Grn. AF Plate Load
28	2.2 Meg.			BTS-2.2 Meg.	Red-Red-Grn. Output Grid
29	270 Ω			BM-4-270	Red-Vi.-Br. Bias
30	680 Ω			BTS-680	Blue-Gray-Br. Filament String-See Note 1
31	470 Ω			BTS-470	Yl.-Vi.-Br. Filament String
32	1000 Ω			BTS-1000	Br.-Blk.-Red Filament String
33	68 Ω			BM-4-68	Blue-Gray-Blk. Filament String
34	1300 Ω				Filament String
35	925 Ω				Filter
36	3300 Ω			BTA-3300	Or.-Or.-Red Filter
37	22 Ω			5W-4-22	Red-Red-Blk. Surge Limiter

Note 1 - Some models use a 3900 Ω resistor in this application.

Note 2 - Not used in models using 680 Ω for item 30.



PARTS LIST AND DESCRIPTIONS (Continued) TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	GAROD PART No.	THORDARN PART No.	
35	PRI. SEC. 5.3K 500K	PRI. SEC. 4.5K 500K	Part of 50.502	A-3678* T22546*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

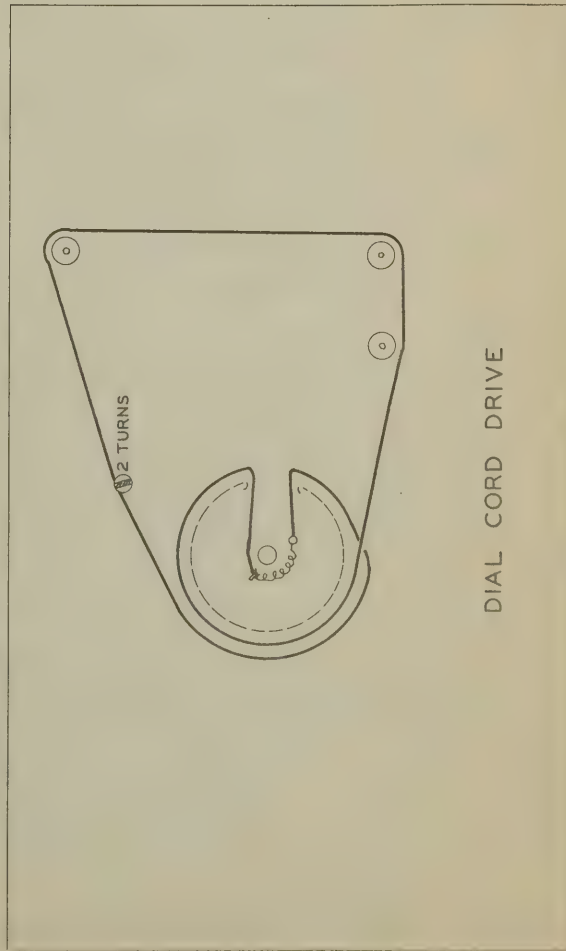
ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	GAROD PART No.	JENSEN PART No.	
39	1.5K	3.3K	30.302		
40	3.3K	2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

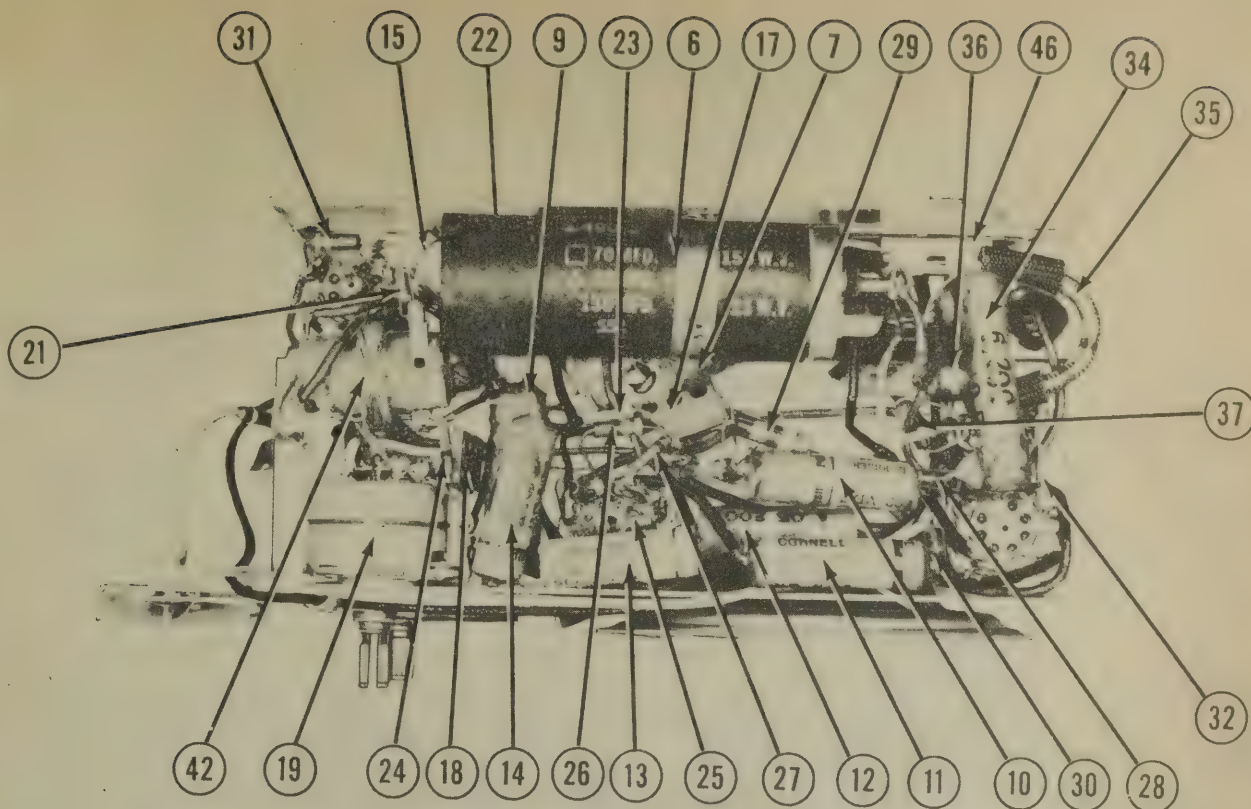
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	GAROD PART No.	MEISSNER PART No.	
41	Loop Ant.	1.5K	1.405	14-1040		
42	Osc. Coil	2K	5.6K	1.414	16-6668	
43	Input IF	24K	19K	1.412	16-6669	
44	Output IF	44K	43K	1.413		

MISCELLANEOUS

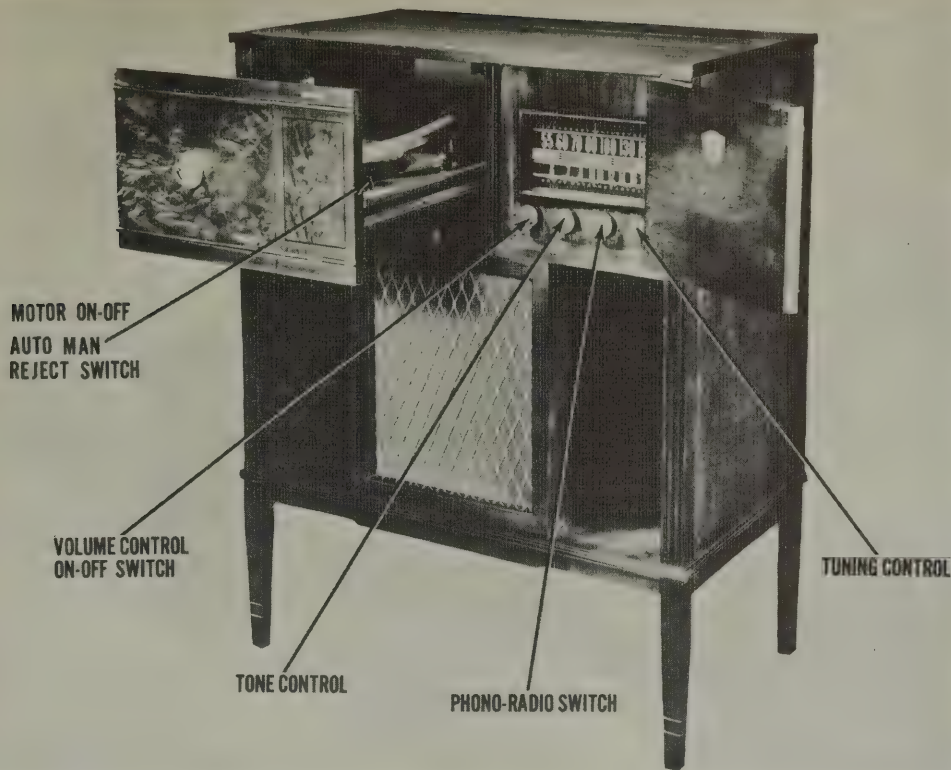
ITEM No.	PART NAME	GAROD PART No.	NOTES
45	2 Gang Var. Cap.	2-203	(23-386 MIF, 33-203 MIF)
46	AC-DC-Batt Sw.		3PDT



CHASSIS—BOTTOM VIEW



GAROD
MODELS 6DPS, 6DPS-A



GAROD
MODELS 6DPS, 6DPS-A

GAROD MODEL 6DPS-A

TRADE NAME Garod Models 6DPS, 6DPS-A "The Sheraton" MANUFACTURER Garod Radio Corp., 70 Washington St., Brooklyn, N.Y. TYPE SET AC Operated Combination Automatic Phono - 2 Band Superheterodyne Receiver with Self Contained Loop Antenna TUBES (SIX) Types, 6SG7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6V6GT Power Output, 5Z4 Rectifier POWER SUPPLY 105-125 Volts AC TUNING RANGE—BROADCAST 540-1650KC RATING .620 Amps. @ 117V AC SHORT WAVE 5.7-18.5 MC							
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
To set pointer turn variable fully closed and set pointer at the last reference mark at the left end of the dial. Set volume control at maximum volume, tone control fully counter-clockwise and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stat. of front section of variable. Low side to chassis.	455KC	BC (Fully counter-clockwise)	High freq. end. (Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
	Loop	1650KC	"	"	"	A5	Connect output of signal generator to a few turns of wire and radiate signal into receiver loop. Adjust for maximum output
	"	1500KC	"	Tune for maximum output.	"	A6	"
	"	600KC	"	"	"	A7	Rock variable and adjust for maximum output. Repeat last three steps until no further improvement can be made.
400Ω	High side to ext. ant. (green) lead. Low side to grd. lead.	18.5MC	SW (Middle position)	High freq. end (Variable fully open)	"	A8	Adjust for maximum output
400Ω	"	16.0MC	"	Tune for maximum output	"	A9	Rock variable and adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS
TUBES

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		GAROD PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	6S87	6S87	8BK	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SC7	6SC7	8Q	
5	Power Output	6V8GT	6V8GT	7AC	
6	Rectifier	5Z4	5Z4	5L	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		GAROD PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	CAP. 20	5-400-4	DT-2220-450	EL-220	AF44J	■ Filter
B	450					
8	10	5-413				
9	25		M-10-25	7A-10	PR525-10	TC22 Cath. Bypass
10	.05		S-4-05	TC-15	D74S5	TP426 Line Bypass
11	.005		S-6-005	TC-25	D76D5	TP405 Output Plate Bypass
12	.02		S-4-02	TC-12	D74S2	TP423 Audio Coupling
13	.005		S-6-005	TC-25	D76D5	TP408 Tone Compensation
14	.01		S-4-01	TC-11	D74S1	TP421 Audio Coupling +
15	.015		S-4-01	TC-11	D74S2	TP423 Tone Compensation
16	.05		S-4-05	TC-11	D74S5	TP426 Audio Coupling
17	.1		S-4-1	TC-1	D74P1	TP428 Screen Bypass
18	.4		S-4-1	TC-1	D74P1	TP428 RF Bypass Pwr. Supp.
19	.02		S-4-02	TC-12	D74S2	TP423 AVC Filter
20	.02		S-4-02	TC-12	D74S2	TP423
21	.250		M0.5-325	1FM-325	SW5T25	MC240 Audio Plate Bypass
22	100		M0.5-31	1FM-31	SW5T1	MC235 Diode Filter
23	500		M0.5-31	1FM-31	SW5T1	MC235
24	3850					Fixed Padder SW
25	100		M0.5-31	1FM-31	SW5T1	MC235 Osc. grid capacitor
26	500		M0.5-31	1FM-31	SW5T1	MC235 RF Coupling

*Not used in all models.
†Install shield on replacement.

CONTROLS

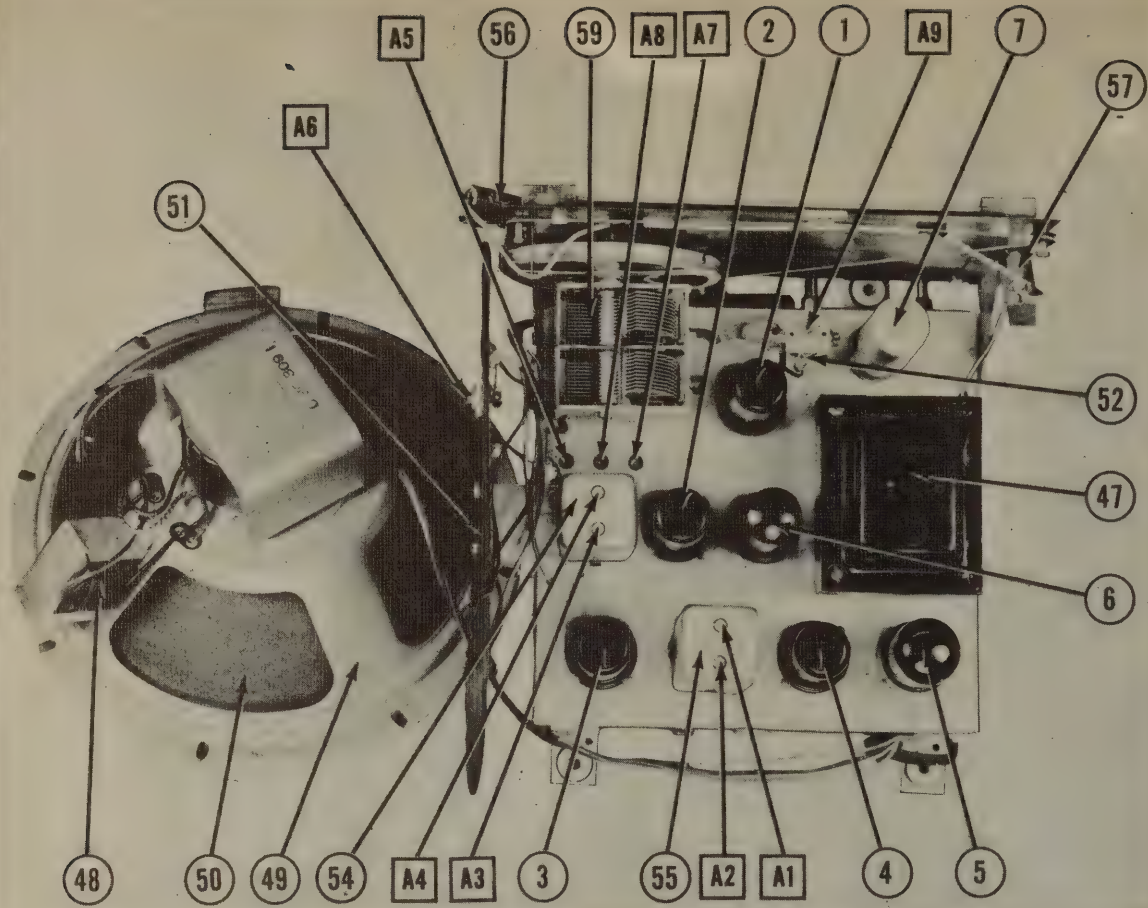
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		GAROD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
27A	1 Meg.	8-202-1	TM243	D18-137X4	AT-112	Volume Control
B	Shaft	Not Reg.	SS25	E	KSS-3	Attach to 27A per instructions
28A	1 Meg.	8-200-5	UM159	D11-137	SM-4	Tone Control
B	Shaft	Not Reg.	SS25	E	AM-61-S	Attach to 28A per instructions

#Use 2nd tap only.

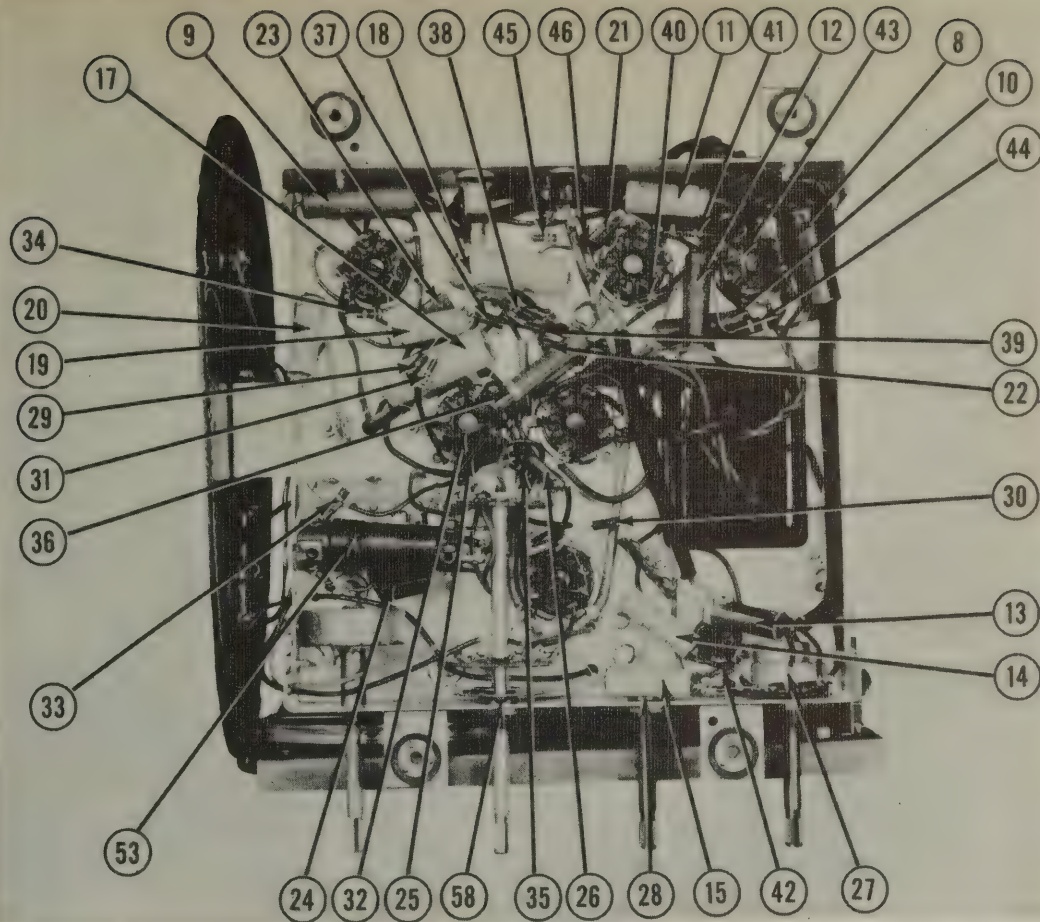
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		GAROD PART No.	MALLORY PART No.	IRC PART No.	
29	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
30	220K			BTS-220K	Red-Red-Red Rf Plate Load
31	470K			BTS-470K	Vi.-Vi.-Vi. Converter Grid
32	22K			BTS-22K	Red-Red-Or. Oscillator Grid
33	47K			BW-2-47	Yl.-Vi.-Blk. Parasitic Suppressor
34	470K			BTS-470	Yl.-Vi.-Br. IF Cathode SW
35	15K			BTS-15K	Yl.-Vi.-Br. IF Cathode SW
36	1 Meg.			BTS-1 Meg.	Br.-Grn.-Or. Voltage Dropping
37	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
38	47K			BTS-47K	Yl.-Vi.-Or. Diode Rf Filter
39	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. Diode Load
40	12 Meg.			BTS-12 Meg.	Br.-Red-Blue AF Grid
41	220K			BTS-220K	Red-Red-Yl. AF Plate Load
42	15K			BTS-15K	Br.-Grn.-Or. Tone Compensation
43	470K			BTS-470K	Yl.-Vi.-Yl. Output Grid
44	390K			BW-1-390	Or.-White-Br. Output Cathode
45	150K			BTS-150K	Br.-Grn.-Yl. Series Phono
46	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. Phono Shunt

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)
TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA	
	PRI.	SEC. 1	SEC. 2	GAROD PART No.	THORDARSON PART No.
47	117V AC 650V CT ③ .078A ③ 2.0A	5V AC ③ 2.0A	6.2V AC ③ 2.0A	P-5012	T22R04

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		GAROD PART No.	THORDARSON PART No.	
48	4500Ω 3.7Ω	300Ω	.75Ω	Part of 30.309	T22S46	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC IMP.		GAROD PART No.	JENSEN PART No.	
49	1000Ω	3.7Ω		30.309	ST-4411 Mod.G10-PS	Parallel field with 5000Ω 2 watt resistor.
50	9½"	1"				NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT

R F COILS

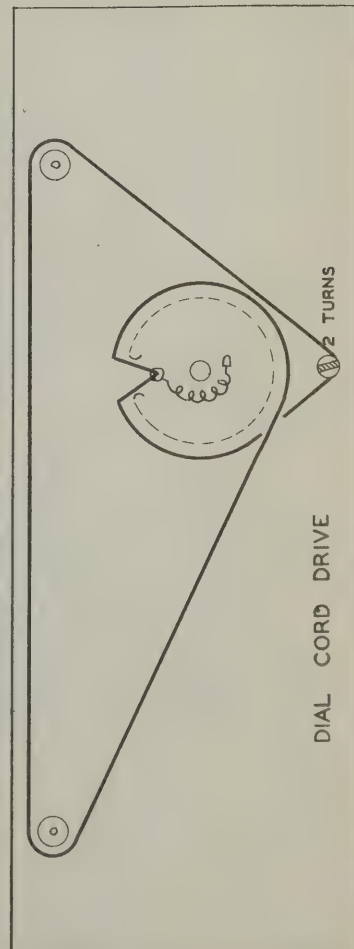
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	GAROD PART No.	MEISSNER PART No.	
51	Loop Ant.	1.5Ω		1.419		
52	5W Ant. Con.	1.7Ω	0.2	1.418		
53	53A BC Osc. Con.	1Ω	9.3Ω	1.417		
54	Input IF	45Ω	43Ω	1.259	16-6658	
55	Output IF	42Ω	44Ω	1.409	16-6660	

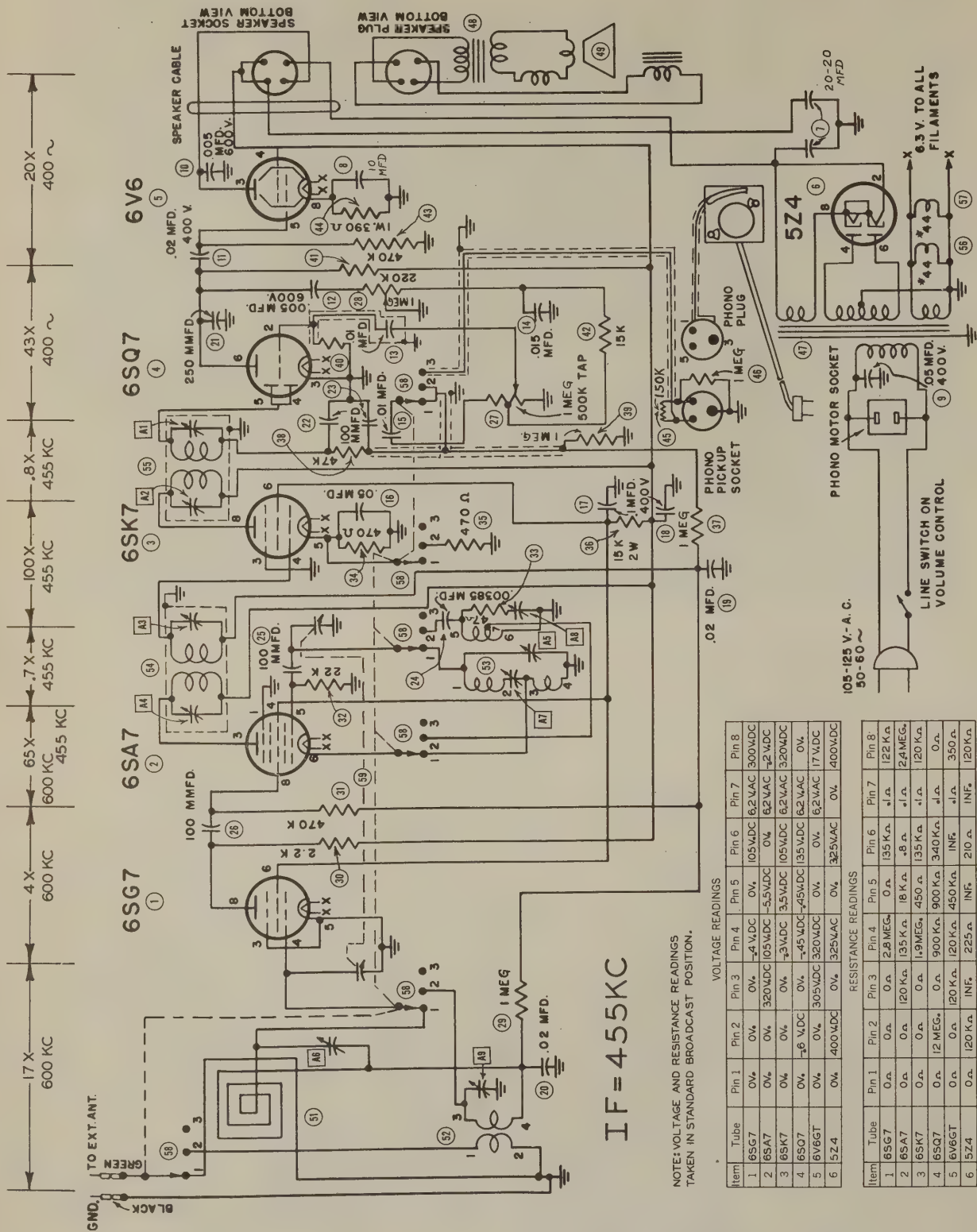
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	GAROD PART No.	
56	Bayonet	6-8	0.25	Blue		
57		6-8	0.25		Type 44	

MISCELLANEOUS

ITEM No.	PART NAME	GAROD PART No.	NOTES
58	Band Switch	11.202	
59	2 Gang Var. Cap. Trimmer Assy.	2.159 4.101	(13-458 MMF, 13-458 MMF)





NOTE: VOLTAGE AND RESISTANCE READINGS
TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS							
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
1	6SG7	OV	OV	OV	OV	OV	OV
2	6SA7	OV	OV	OV	OV	OV	OV
3	6SK7	OV	OV	OV	OV	OV	OV
4	6SQ7	OV	OV	OV	OV	OV	OV
5	6V6GT	OV	OV	OV	OV	OV	OV
6	5Z4	OV	OV	OV	OV	OV	OV

RESISTANCE READINGS							
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
1	6SG7	OV	OV	OV	OV	OV	OV
2	6SA7	OV	OV	OV	OV	OV	OV
3	6SK7	OV	OV	OV	OV	OV	OV
4	6SQ7	OV	OV	OV	OV	OV	OV
5	6V6GT	OV	OV	OV	OV	OV	OV
6	5Z4	OV	OV	OV	OV	OV	OV

- The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
 2. Socket connections are shown as bottom views.
 3. Measured values are from socket pin to common negative.
 4. Line voltage maintained at 117 volts for voltage readings.
 5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
 6. Volume control at maximum, no signal applied for voltage measurements.



VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

GENERAL TELEVISION MODEL 21A4

TRADE NAME	General Television, Model 21A4
MANUFACTURER	General Television & Radio Corp., 2701 Lehmann St., Chicago, Ill.
TYPE SET	Battery Operated Portable Superheterodyne Receiver-Self Contained Loop Antenna
TUBES (FOUR)	Types, 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 3LF4 Power Output.
POWER SUPPLY	1.5 Volt "A" Battery and 90 Volt "B" Battery in Pack Form (Eveready #748 "A-B" or Equiv.)

RATING	260 MA @ 1.6 Volts DC and 12 MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540-1720KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer in a horizontal position. Set volume control at maximum volume and keep output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to chassis.	465KC	High freq. end.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
	Loop	1500KC	1500KC	"	A5	Connect output of signal generator to a few turns of wire and radiate signal into receiver loop. Adjust for maximum output.
	"	"	"	"	A6	"

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PARTS LIST AND DESCRIPTIONS TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		GEN. TELEVISION PART No.	STANDARD REPLACEMENT		
1	Converter	11A6	11A6	5AD	
2	IF AMP.	11A5	11A5	7AO	
3	Det.-AVC-AF	11H4	11H4	5AG	
4	Power Output	3LF4	3LF4	6BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		GEN. TELEVISION PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
1	10.002		M-10-150	UT-121	PRS150-12	Pwr. Supp. Bypass Output Plate Bypass Audio Coupling
2	100		S-6-002	TC-22	684-002	
3	.01		S-4-01	TC-11	484-01	
4	.01		S-4-01	TC-11	484-01	
5	.02		S-4-02	TC-12	484-02	AVC Filter IF Grid Bypass Conv. Screen Bypass Audio Plate Bypass
6	.02		S-4-02	TC-11	484-01	
7	.02		S-4-02	TC-12	484-02	
8	.02		S-4-02	TC-11	484-01	
9	100		M0.5-31	1FM-31	1468-0001	TF Bypass Vol. Cont. Osc. Grid Capacitor
10	250		M0.5-325	1FM-325	1468-00025	
11	500		M0.5-31	1FM-31	1468-0001	
12	100		M0.5-31	1FM-31	1468-0001	

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		RESISTANCE	GEN. TELEVISION PART No.	MALLORY PART No.	CLAROSTAT PART No.	
15A	2 Meg.	1	20-4	MR65	M-56-Z	Volume Control Attach to 15A per instructions
15B	2 Meg.	1	Not Req.	Not Req.	Not Req.	
15C	2 Meg.	1	Not Req.	Not Req.	Not Req.	
15D	2 Meg.	1	Not Req.	Not Req.	Not Req.	

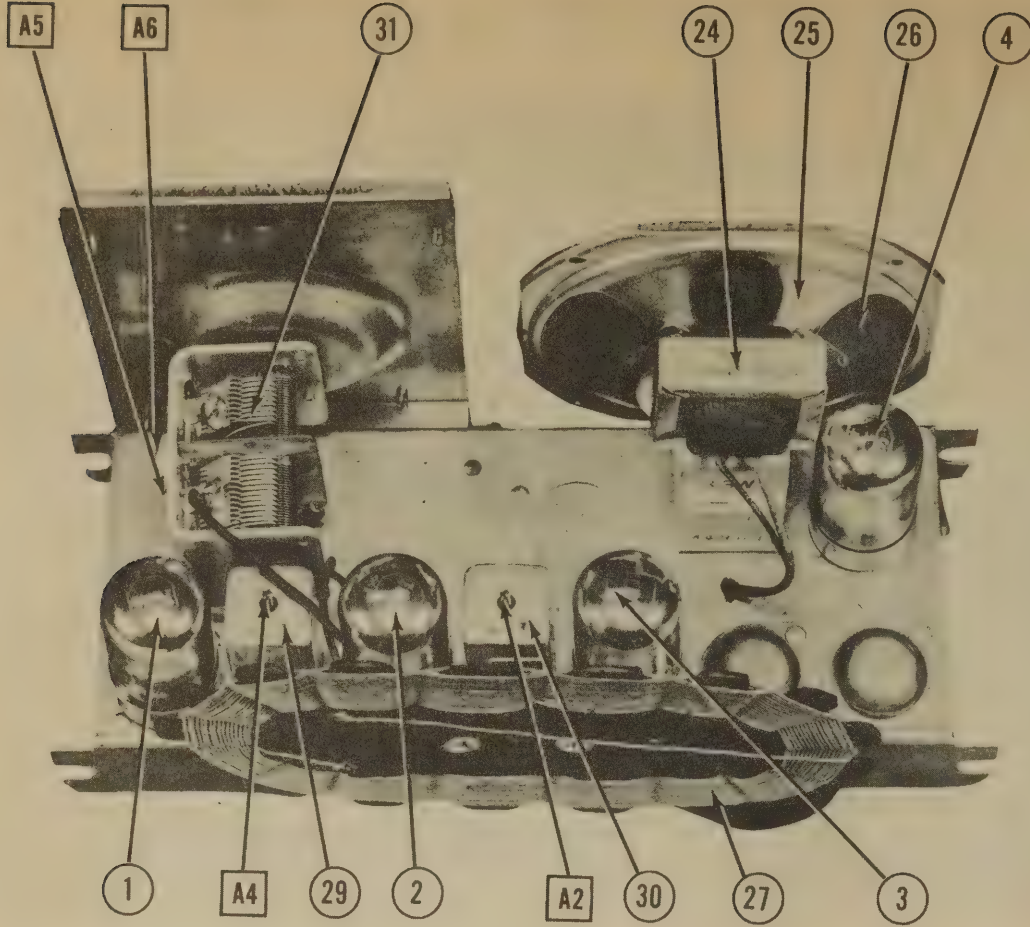
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		GEN. TELEVISION PART No.	IRC PART No.	
16	500K		BTS-470K	Grn.-Blk.-Yl. Oscillator Grid
17	100K		BTS-100K	Br.-Blk.-Yl. Converter Screen Dropping
18	6 Meg.		BTS-5.6 Meg.	Blue-Blk.-Grn. IF Grid
19	6 Meg.		BTS-5.6 Meg.	Blue-Blk.-Grn. IF Grid
20	10 Meg.		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
21	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
22	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
23	350K		BW-2-390	Or.-White-Gr. Bias

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA		INSTALLATION NOTES
		DC RES.	GEN. TELE. STANCOR PART No.	
24	7000K	3.12	TA-112-447	*Bend mounting tabs down, file out slots and mount on original bracket.
			A-3878*	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		GEN. TELEVISION PART No.	JENSEN PART No.	
25	FIELD PM VC IMP. 3.12	8-3W	ST-10ST Mod. P5-X	Fabricate new mounting bracket.
26	CONE DIA. VC DIA. 4-5/8"			

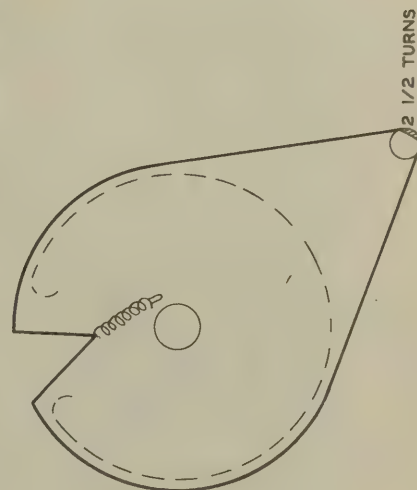
NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	GEN. TELEVISION PART No.	MEISSNER PART No.	
27	Loop Ant.	1.5Ω	1.5Ω		14-1040	
28	Osc. Coil	10Ω	6Ω		16-6668	
29	Input IF	10Ω	10Ω		16-6669	
30	Output IF	10.5Ω	10Ω			

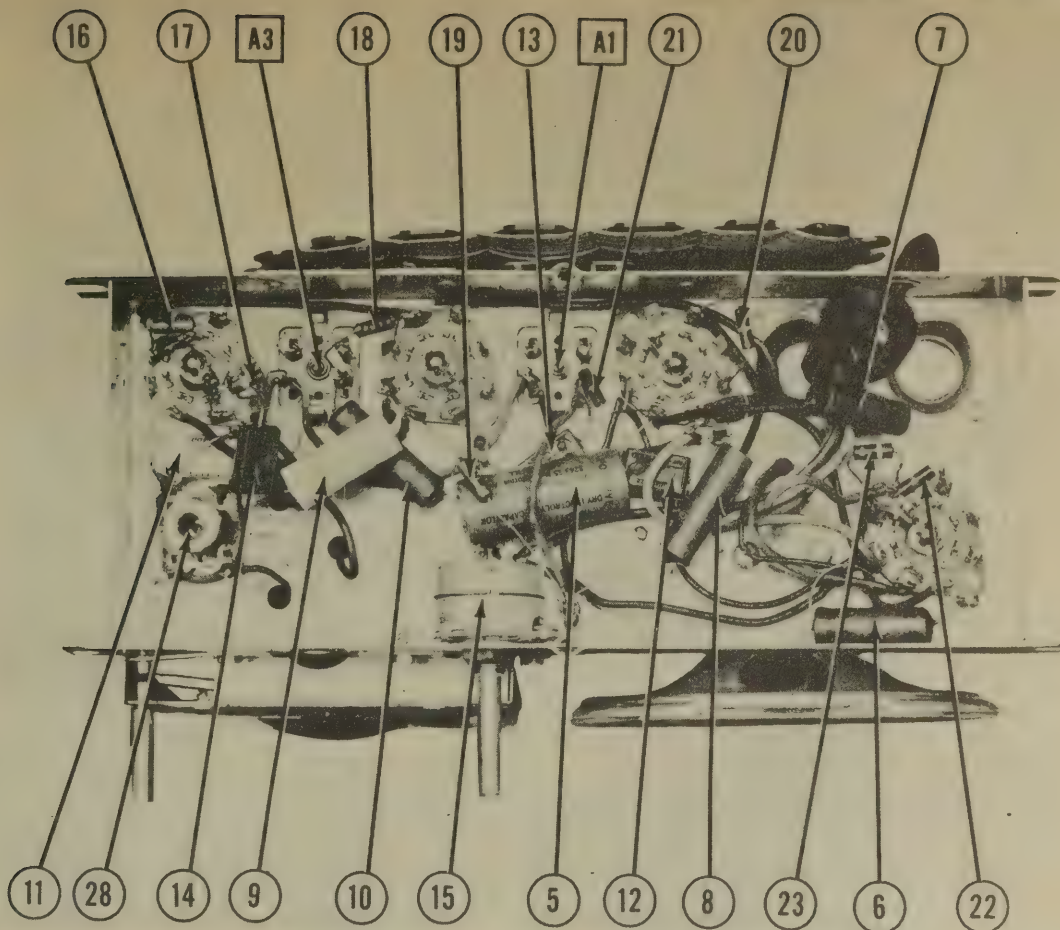
MISCELLANEOUS

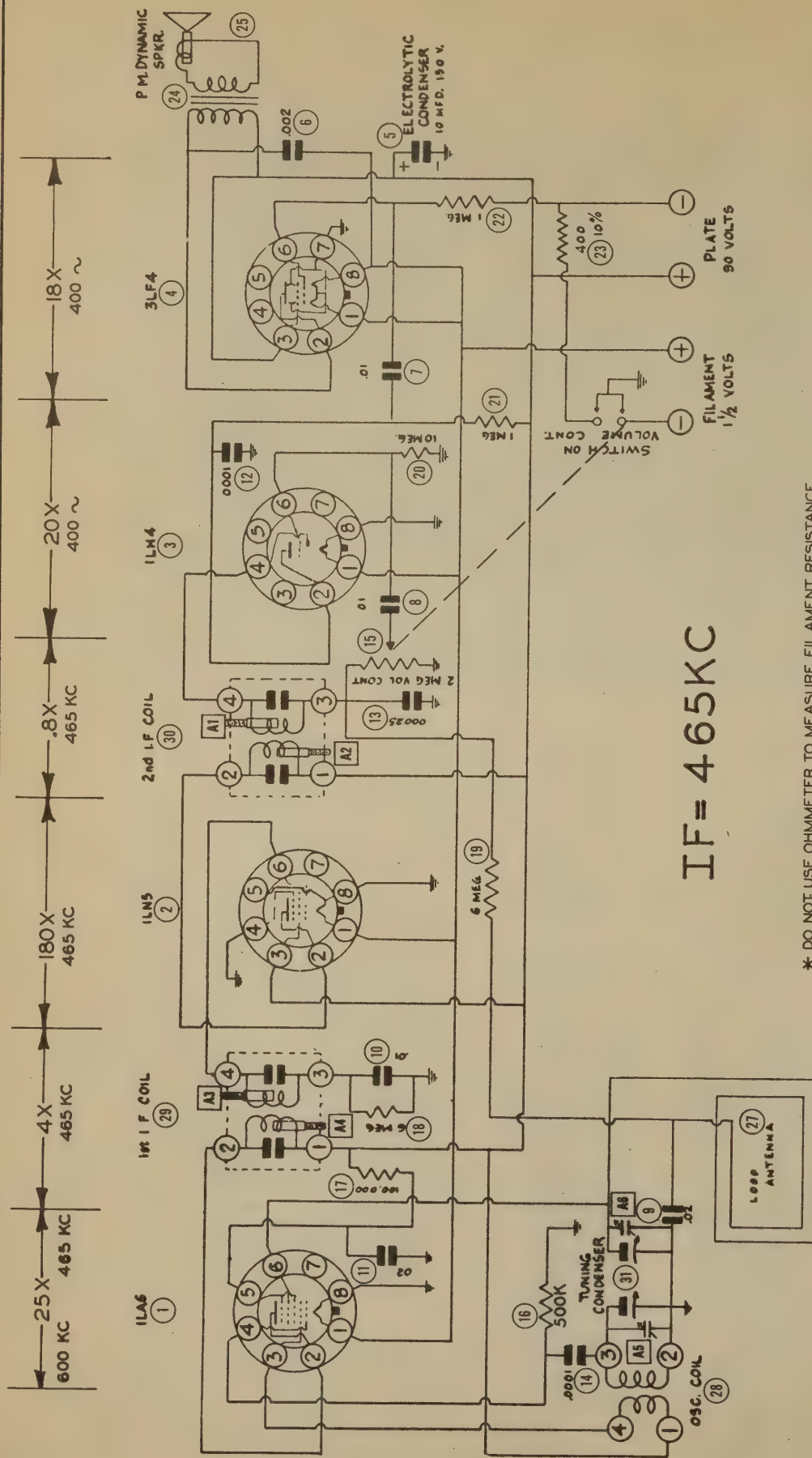
ITEM No.	PART NAME	GEN. TELE. PART No.	NOTES
31	2 Gang Var. Cap		(25-474 MTF, 33-191 MTF)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





IF = 465KC

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	1.6 VDC	90 VDC	90 VDC	0V	32 VDC	0V	0V	0V
2	1LN5	1.6 VDC	90 VDC	90 VDC	0V	0V	0V	0V	0V
3	1LM4	1.6 VDC	55 VDC	90 VDC	1 VDC	0V	0V	0V	0V
4	3LF4	1.6 VDC	86 VDC	90 VDC	0V	-5 VDC	-1.2 VDC	0V	1.6 VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	*	2.5 MEG.	2.5 MEG.	400 K Ω	2.6 MEG.	9 MEG.	INF.	*
2	1LN5	*	2.5 MEG.	2.5 MEG.	0 Ω	*	7 MEG.	9 MEG.	*
3	1LM4	*	3.5 MEG.	2.5 MEG.	1.7 MEG.	INF.	10 MEG.	INF.	*
4	3LF4	*	2.5 MEG.	2.5 MEG.	0 Ω	360 Ω	1 MEG.	*	*

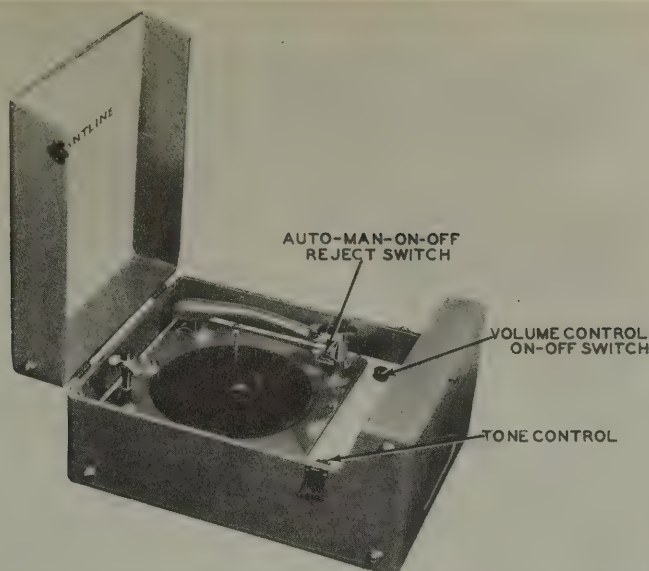
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B + CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-14

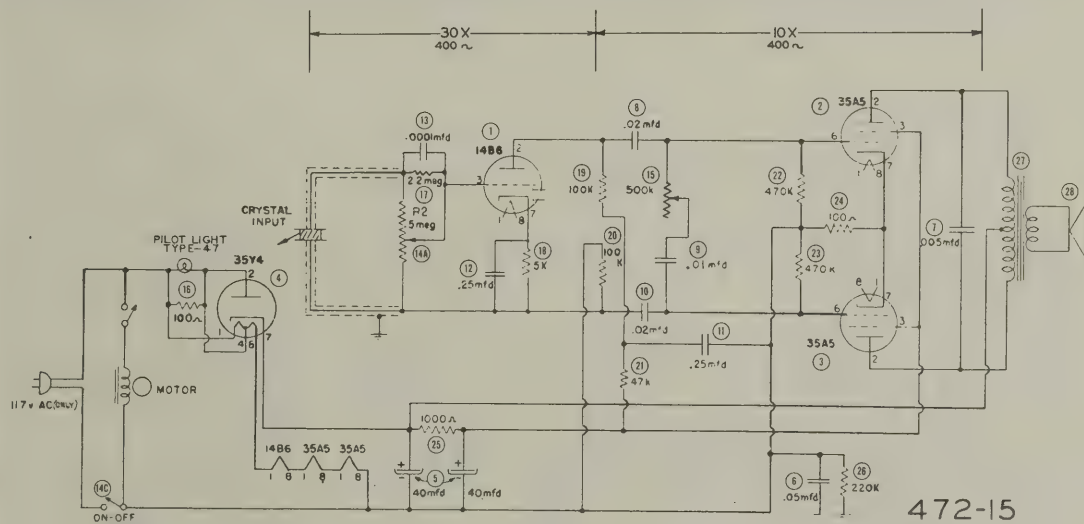
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting to chassis.

- 1 - DC Voltage measurements are at 20,000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- 5 - Volume control at maximum, no signal applied for voltage measurements.



GRANTLINE MODEL 641

TRADE NAME Grantline Model 641
SUPPLIER W.T. Grant Co., 1441 Broadway, New York, N.Y.
TYPE SET AC Operated Record Player with 4 Tube Amp. and speaker.
TUBES (FOUR) Types, 14B6 Audio Amp. & Phase Inverter, 2 - 35A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY RATING 105-125 Volts AC
 .265 Amp. @ 117V AC



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14B6	13.5VAC	90VDC	0V	0VDC	0V	0V	15VDC	0V
2	35A5	48VAC	108VDC	108VDC	0V	0V	7.2VDC	13.5VAC	0V
3	35A5	87VAC	109VDC	108VDC	0V	0V	7.2VDC	48VAC	0V
4	35Y4	117VAC	113VAC	0V	113VAC	0V	0V	113VDC	87VAC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14B6	12Ω	287KΩ	5MEGΩ	113KΩ	INF	INF	113KΩ	0Ω
2	35A5	41Ω	140KΩ	140KΩ	INF	0Ω	430KΩ	92Ω	12Ω
3	35A5	72Ω	140KΩ	140KΩ	0Ω	0Ω	410KΩ	92Ω	41Ω
4	35Y4	100Ω	97Ω	INF	97Ω	INF	0Ω	140KΩ	72Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		GRANTLINE PART No.	STANDARD REPLACEMENT		
1	AF & Phase Inv.	14B6	14B6	6W	
2	Power Output	35A5	35A5	6MA	
3	"	35A5	35A5	6AL	
4	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION AND INSTALLATION NOTES
		GRANTLINE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
5A	CAP.	A25-019	M-2X40-150	TA-440	PRSA150-40	Filter - Red "
6	40				40	
7	150				684-05	TP426
8	.05				684-005	TP408
9	.005				TC-25	TP423
10	.02				TC-12	TP421
11	.01				TC-11	TP421
12	.02				TC-12	TP423
13	.02				TC-12	TP423
14	.25				TC-25	TP423
15	.25				TC-25	TP423
16	.25				TC-25	TP423
17	.25				TC-25	TP423
18	.25				TC-25	TP423
19	.25				TC-25	TP423
20	.25				TC-25	TP423
21	.25				TC-25	TP423
22	.25				TC-25	TP423
23	.25				TC-25	TP423
24	.25				TC-25	TP423
25	.25				TC-25	TP423
26	.25				TC-25	TP423
27	.25				TC-25	TP423
28	.25				TC-25	TP423
29	.25				TC-25	TP423
30	.25				TC-25	TP423
31	.25				TC-25	TP423
32	.25				TC-25	TP423
33	.25				TC-25	TP423
34	.25				TC-25	TP423
35	.25				TC-25	TP423
36	.25				TC-25	TP423
37	.25				TC-25	TP423
38	.25				TC-25	TP423
39	.25				TC-25	TP423
40	.25				TC-25	TP423
41	.25				TC-25	TP423
42	.25				TC-25	TP423
43	.25				TC-25	TP423
44	.25				TC-25	TP423
45	.25				TC-25	TP423
46	.25				TC-25	TP423
47	.25				TC-25	TP423
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74	.25				TC-25	TP423
75	.25				TC-25	TP423
76	.25				TC-25	TP423
77	.25				TC-25	TP423
78	.25				TC-25	TP423
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81	.25				TC-25	TP423
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84	.25				TC-25	TP423
85	.25				TC-25	TP423
86	.25				TC-25	TP423
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89	.25				TC-25	TP423
90	.25				TC-25	TP423
91	.25				TC-25	TP423
92	.25				TC-25	TP423
93	.25				TC-25	TP423
94	.25				TC-25	TP423
95	.25				TC-25	TP423
96	.25				TC-25	TP423
97	.25				TC-25	TP423
98	.25				TC-25	TP423
99	.25				TC-25	TP423
100	.25				TC-25	TP423

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		GRANTLINE PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
14A	500KΩ	A-9-067	MR48	D13-133	M-60-Z	Volume Control
14B	500KΩ	Not Req.	Not Req.	A	Not Req.	Attach to 14A per instructions
15A	500KΩ	MR48	MR48	D13-133	M-60-Z	Tone Control-Late production
15B	500KΩ	Not Req.	Not Req.	A	Not Req.	Attach to 15A per instructions
16A	1 Meg.	A-9-068	MR53	D13-137	M-63-Z	Tone Control-Early production
16B	1 Meg.	Not Req.	Not Req.	A	Not Req.	Attach to 16A per instructions

RESISTORS

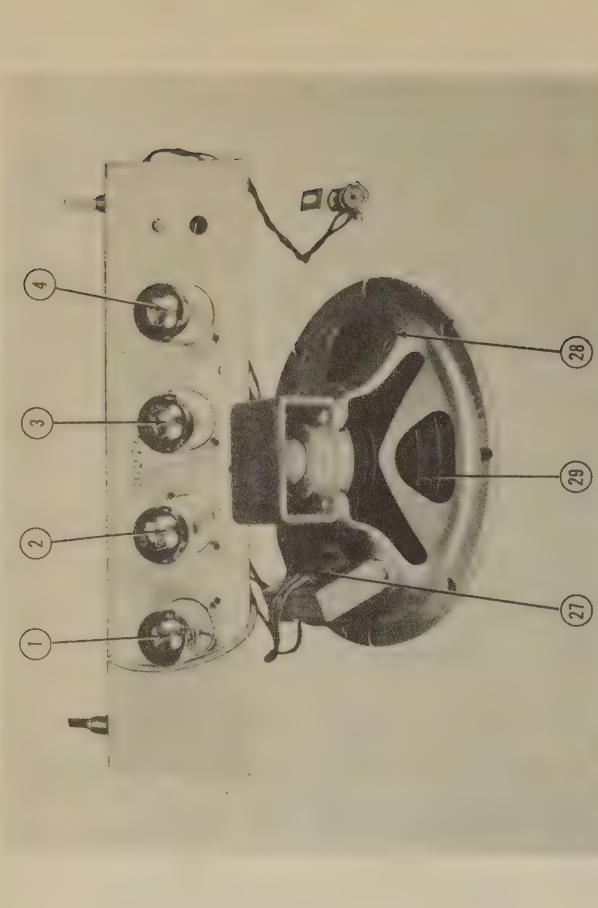
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		GRANTLINE PART No.	MALLOY PART No.	IRC PART No.	IRC PART No.	
16	100Ω			BT-1-100	BT-1-100	Br.-Blk.-Br. Pilot Light Shunt
17	2.2 Meg.			BTS-2-2	BTS-2-2	Red-Red-Grn. Series Phono
18	4700Ω			BTS-4700	BTS-4700	Yl.-Yl.-Red Phase Inverter Cathode
19	100KΩ			BTS-100K	BTS-100K	Br.-Blk.-Yl. Plate Load
20	100KΩ			BTS-100K	BTS-100K	Br.-Blk.-Yl. Phase Inverter Cathode
21	470Ω			BTS-47Ω	BTS-47Ω	Yl.-Yl.-Or. Phase Inverter Plate Decoupling
22	470KΩ			BTS-470K	BTS-470K	Yl.-Yl.-Yl. Output Grid
23	470KΩ			BTS-470K	BTS-470K	Yl.-Yl.-Yl. Output Grid
24	100Ω			BT-1-100	BT-1-100	Br.-Blk.-Br. Output Cathode
25	1000Ω			BT-1-1000	BT-1-1000	Br.-Blk.-Red Filter
26	220KΩ			BTS-220K	BTS-220K	Red-Red-Yl. Line Isolation

TRANSFORMER (OUTPUT)

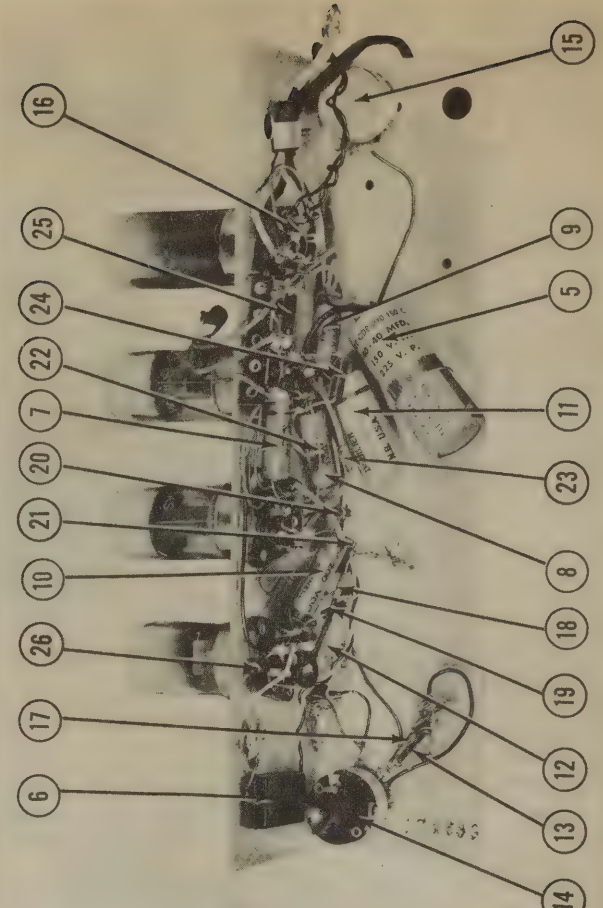
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		GRANTLINE PART No.	STANCO PART No.	THORDARN PART No.	THORDARN PART No.	
27	200W	3-3Q	280Q	.35Q	T22847	Universal transformer

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA				INSTALLATION NOTES
		GRANTLINE PART No.	JENSEN PART No.	JENSEN PART No.	JENSEN PART No.	
28A	FIELD					
28B	PM					
29	VC IMP.					
	3-3Q					
	6" DIA.					
	1"					
	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT.					



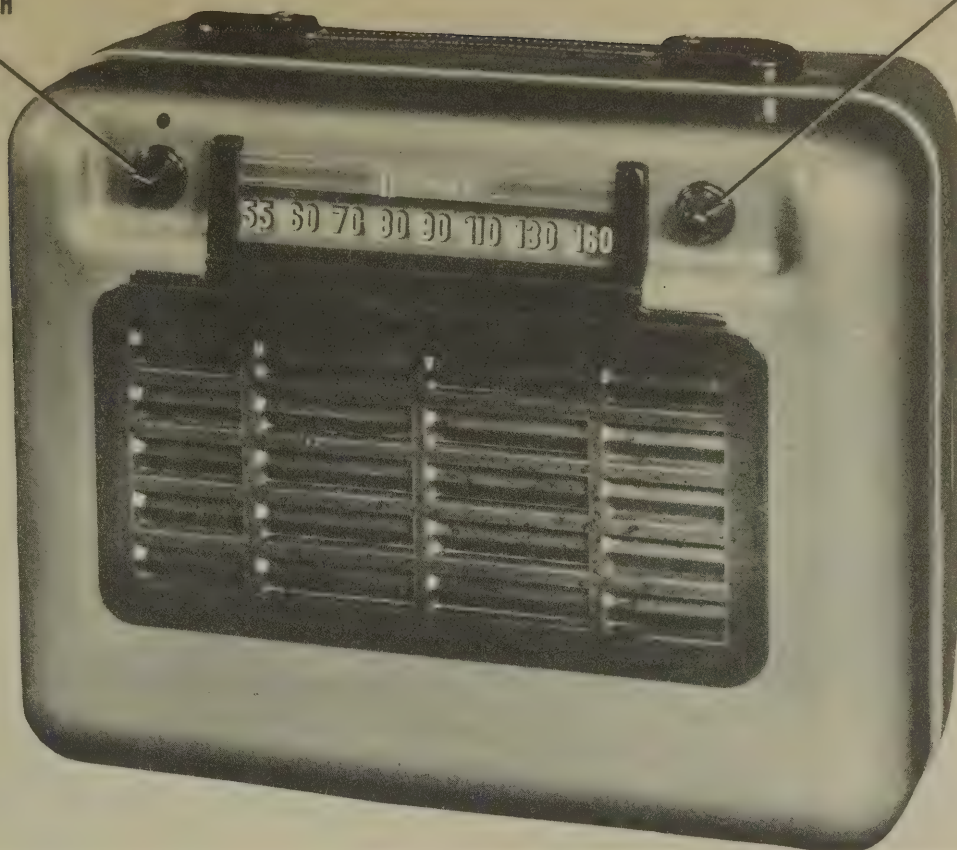
CHASSIS—BOTTOM VIEW



VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

HOFFMAN
MODEL A-700



HOFFMAN MODEL A-700

HOFFMAN
MODEL A-700

TRADE NAME Hoffman, Model A-700 (Ch. 110S)
MANUFACTURER Hoffman Radio Corp., 3761 S. Hill St., Los Angeles, Calif.
TYPE SET Three Power Portable Superheterodyne Receiver-Self Contained Loop Antenna
TUBES (FIVE) Types, 1T4 RF Amp., 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3Q4 Power Amp.
POWER SUPPLY 117 Volts AC-DC or 9 Volt "A" Supply and 90 Volt "B" Supply
RATING .180 Amps. @ 117V AC or 53MA @ 9.3V DC & 21MA @ 93V DC

TUNING RANGE—BROADCAST 535-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power for alignment if available. If a-c power is used, use an isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #6 of 1R5. Low side to B-.	455KC	High freq. end (Variable fully open)	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If a-c power is used without an isolation transformer, reduce dummy ant. to 200 MMF. to reduce hum modulation.
	Loop	1650KC	"	"	A5	Connect output of signal generator to a few turns of wire and radiate signal into receiver loop. Adjust for maximum output.
"		1400KC	Tune for maximum output.	"	A6, A7	"

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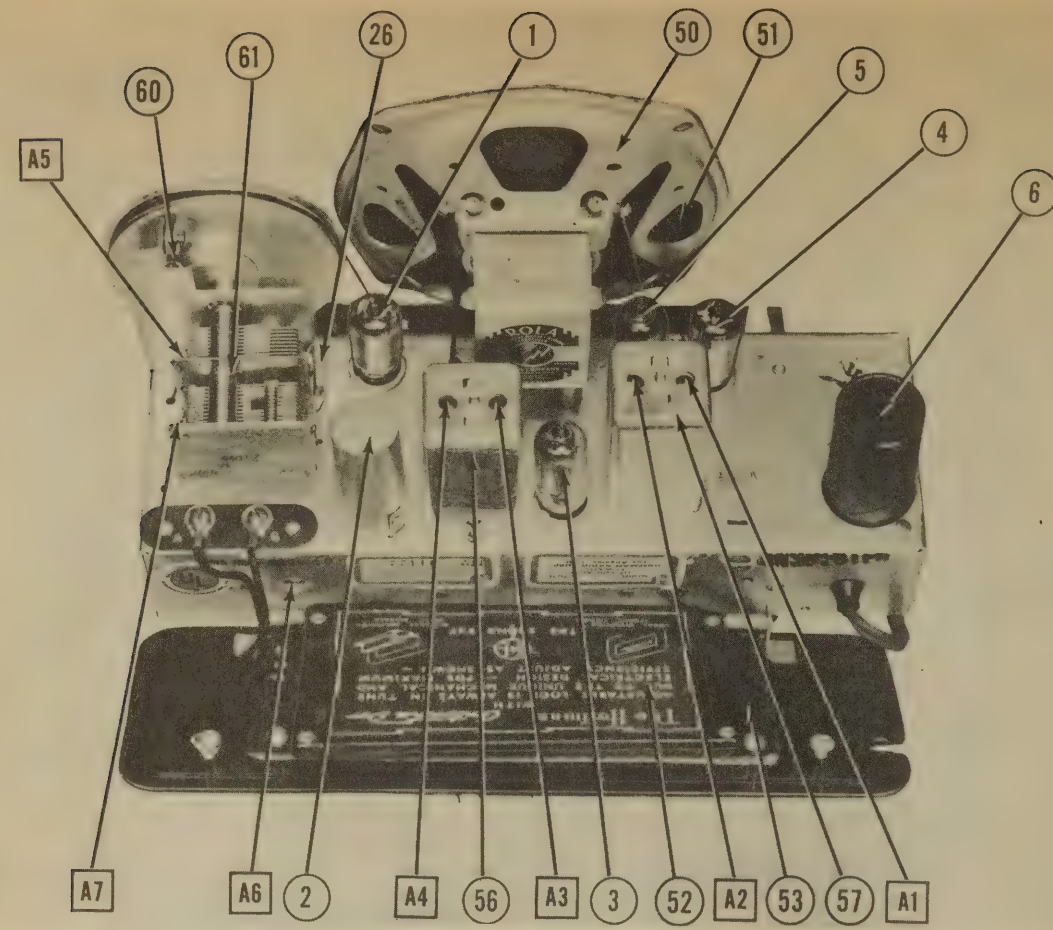
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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES AND INSTALLATION NOTES
		HOFFMAN PART No.	SOLAR PART No.	CORNELL DUBILIER PART No.	
6A	50 CAP.	4201	DY-5030-150	UP8BL74	FP214
6B	30 150				■ Filter
7	100 25	4204	M-100-50	BRH251	TC2501
8	100 25	4204	M-100-50	BRH251	TC2501
9	100 25	4101	S-100-50	TC-15	TC2501
10	100 25	4102	S-100-50	TC-15	TC2501
11	100 25	4102	S-100-50	TC-15	TC2501
12	100 25	4102	S-100-50	TC-15	TC2501
13	100 25	4102	S-100-50	TC-15	TC2501
14	100 25	4102	S-100-50	TC-15	TC2501
15	100 25	4102	S-100-50	TC-15	TC2501
16	100 25	4102	S-100-50	TC-15	TC2501
17	100 25	4102	S-100-50	TC-15	TC2501
18	100 25	4102	S-100-50	TC-15	TC2501
19	100 25	4102	S-100-50	TC-15	TC2501
20	100 25	4102	S-100-50	TC-15	TC2501
21	100 25	4102	S-100-50	TC-15	TC2501
22	100 25	4102	S-100-50	TC-15	TC2501
23	100 25	4102	S-100-50	TC-15	TC2501
24	100 25	4102	S-100-50	TC-15	TC2501
25	100 25	4102	S-100-50	TC-15	TC2501
26	100 25	4102	S-100-50	TC-15	TC2501

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		HOFFMAN PART No.	MALLORY PART No.	CLAROSTAT PART No.	
27A	1 Meg. Shaft	4806	MR53	D13-137	Volume Control
27B	1 Meg. Switch	Not Req.	Not Req.	Not Req.	Attach to 26A per instructions.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		HOFFMAN PART No.	IRC PART No.	HOFFMAN PART No.	
28	3.3 Meg.	4535	BTS-3.3 Meg.	BTS-3.3 Meg.	Or.-Or.-Grm. AVC Network
29	2.2 Meg.	4502	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grm. AVC Network
30	820Ω	4533	BTS-820	BTS-820	Gray-Red-Grm. Filament String
31	470Ω	4506	BTS-470K	BTS-470K	Yl.-Yl.-Yl. Line Isolation
32	1 Meg.	4513	BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grm. Converter Grid
33	100Ω	4511	BTS-100K	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
34	2.2 Meg.	4502	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grm. IF Grid
35	3900Ω	4527	BTS-3900	BTS-3900	Or.-White-Red Voltage Dropping
36	2.2 Meg.	4502	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grm. AVC Network
37	100Ω	4511	BTS-100K	BTS-100K	Br.-Blk.-Yl. Diode RF Filter
38	10 Meg.	4586	BTS-10 Meg.	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
39	1 Meg.	4535	BTS-1 Meg.	BTS-1 Meg.	Or.-Or.-Grm. AF Screen Dropping
40	1 Meg.	4513	BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grm. AF Plate Load
41	820Ω	4533	BTS-820	BTS-820	Gray-Red-Grm. Filament String-See Note 1
42	2.2 Meg.	4502	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grm. Output Grid
43	150Ω	4534	BTS-1500	BTS-1500	Br.-Grm.-Red Filament String
44	47Ω	4532	BW-2-47	BW-2-47	Yl.-Yl.-Blk. Rectifier Ballast
45	1000Ω	4522	BTA-1000	BTA-1000	Br.-Blk.-Red Filter
46	1500Ω	4701	AB-1500	AB-1500	Yl.-Yl.-Br. Filament String
47	470Ω	4531	BTA-470	BTA-470	Yl.-Yl.-Blk. Surge Limiter
48	47Ω	4532	BW-2-47	BW-2-47	

Note 1 - Some models use 100Ω resistor in this application.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI. SEC.	PRI. SEC.	HOFFMAN PART No.	STANCOR PART No.	
49	2.7Ω	2.4Ω	500Ω	500Ω	8104	8-5579	T22888

SPEAKER

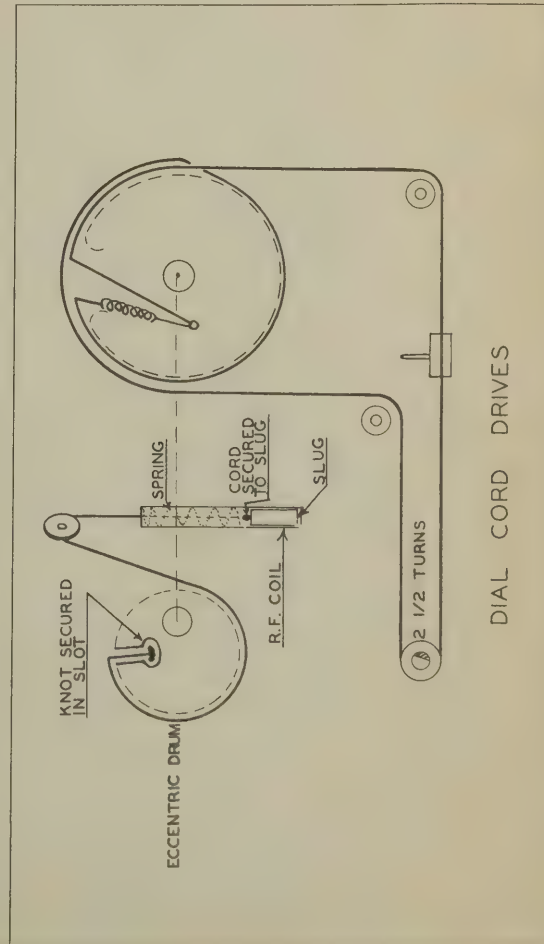
ITEM No.	RATINGS				REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	VC DIA.	VC DIA.	HOFFMAN PART No.	JENSEN PART No.	
50	PM	3.4Ω			9019	ST-107* Mod. P5-V	*Drill new mounting holes
51	5-1/8"	1/2"			NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

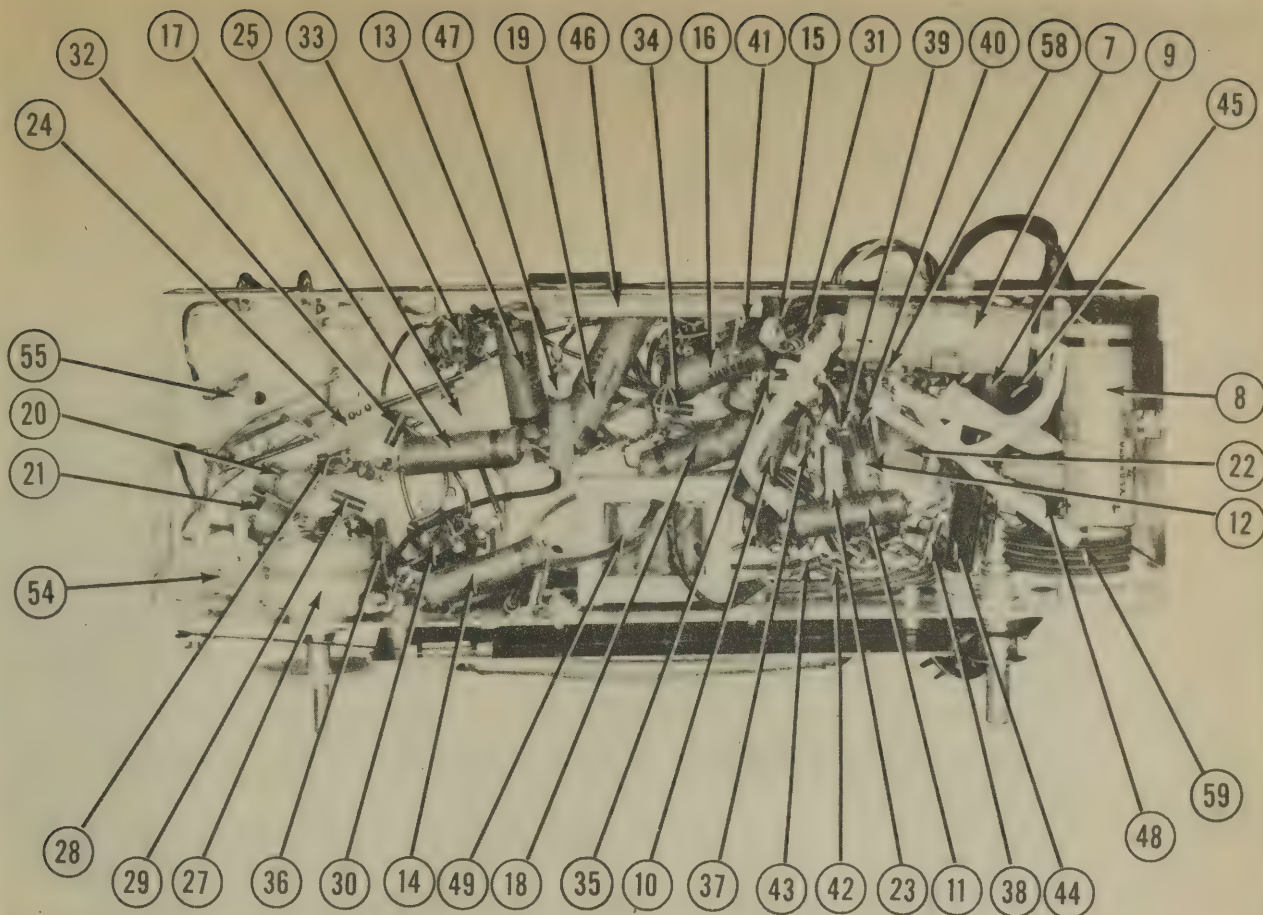
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	HOFFMAN PART No.	MEISSNER PART No.	
52	Loop Ant.		1.3Ω	55203		
53	Loop Load		.2Ω	5245		
54	RF Coil		4Ω	5246		
55	Osc. Coil	1.6Ω	5.2Ω	5244	14-1040	
56	Input IF	14.5Ω	14.5Ω	5242	16-8858	
57	Output IF	23Ω	23Ω	5243	16-6660	

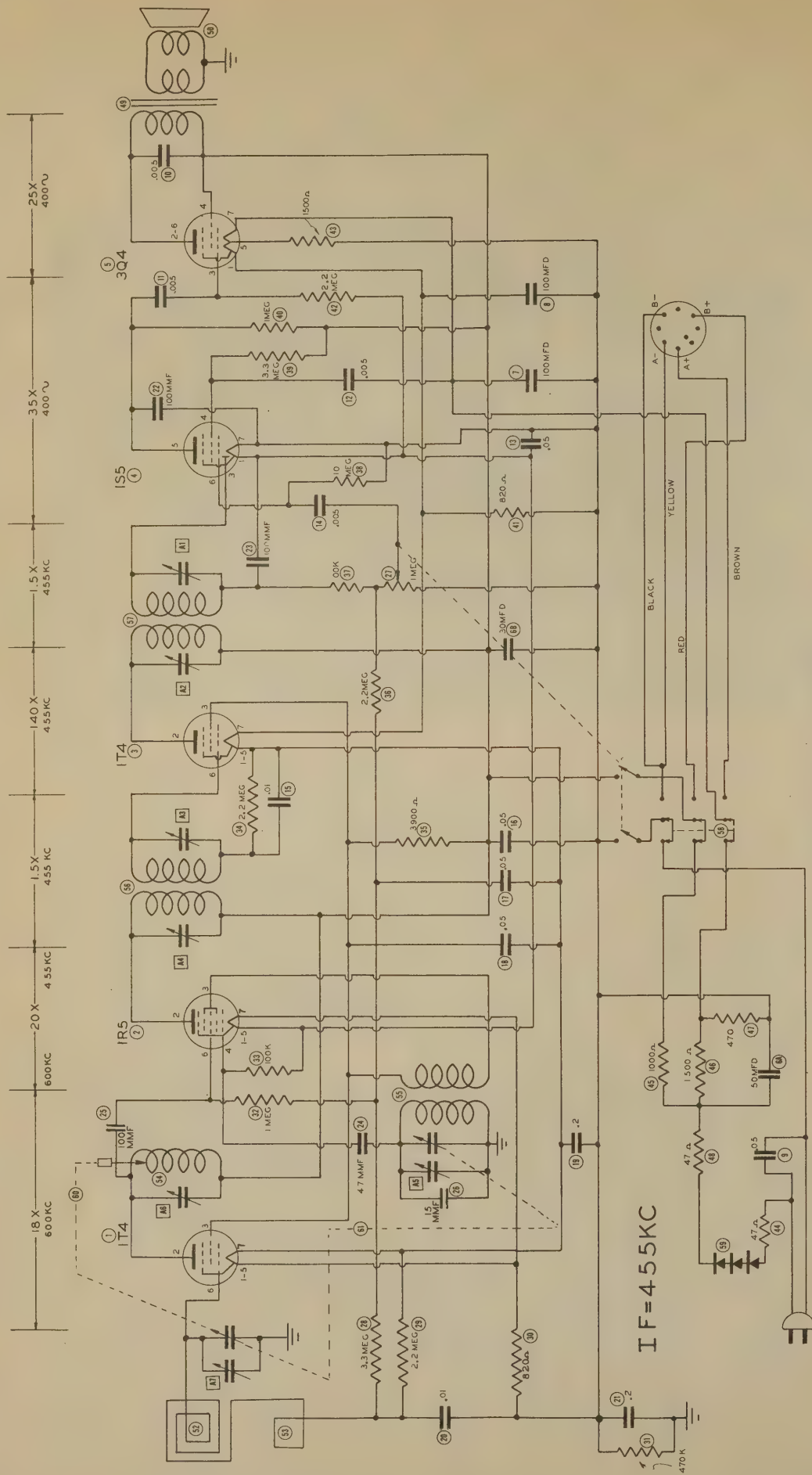
MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
58	Switch		Power Change
59	Rectifier		Selenium
60	RF Tuning Assy.		
61	2 Gang Var. Cap	4401	(35-437 MTF, 35-233 MTF)



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	I74	3.3VDC	92VDC	72VDC	0V	3.3VDC	13VDC	4.6VDC
2	IR5	1.8VDC	92VDC	72VDC	7VDC	1.8VDC	13VDC	3.3VDC
3	I74	4.6VDC	92VDC	72VDC	13VDC	4.6VDC	4.8VDC	5.6VDC
4	IR5	1.8VDC	0V	1VDC	15VDC	10VDC	1VDC	0V
5	3Q4	5.8VDC	87VDC	1VDC	9VDC	71VDC	87VDC	8.4VDC

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RESISTANCE READINGS

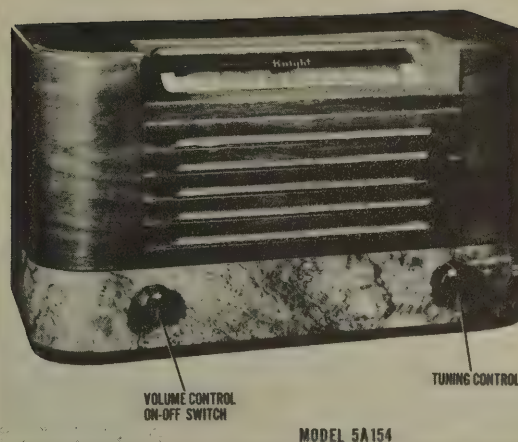
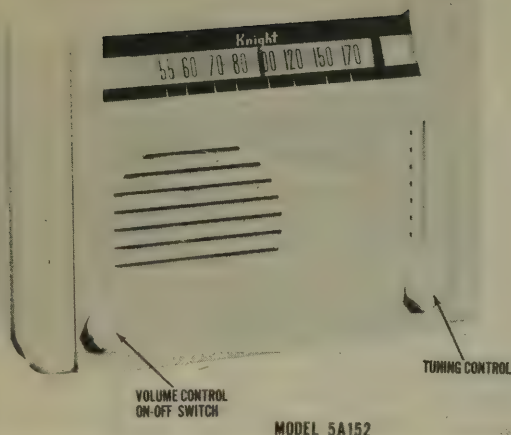
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	I74	*	28K Ω	6.7K Ω	INF.	*	4.6 MEG.	*
2	IR5	*	28K Ω	6.7K Ω	83K Ω	*	3 MEG.	*
3	I74	*	28K Ω	6.7K Ω	2.5 MEG.	*	2.5 MEG.	*
4	IR5	*	0 Ω	940K Ω	3.1 MEG.	790K Ω	10 MEG.	0 Ω
5	3Q4	*	3.4K Ω	2.3 MEG.	2.8K Ω	*	3.4K Ω	*

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

KNIGHT
MODELS 5A150, 5A152, 5A154



KNIGHT
MODELS 5A150, 5A152, 5A154

TRADE NAME	Knight, Models 5A150, 5A152, 5A154.					
SUPPLIER	Allied Radio Corp., 833 W. Jackson Blvd., Chicago, Ill.					
TYPE SET	AC-DC Superheterodyne - Self Contained Loop Antenna					
TUBES (FIVE)	Types, 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output (Model 5A-152), 50L6GT Power Output (Model 5A-154), 35Y4 Rectifier.					
POWER SUPPLY	105-125 Volts AC-DC					
TUNING RANGE—BROADCAST	540-1700KC		RATING .255 Amps. @ 117V AC			
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to stator of rear section of variable. Low side to B-.	455KC	High freq.end (Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001 MMF to reduce hum modulation.
100 MMF	High side to ant. lead. Low side to chassis.	1720KC	"	"	A5	Adjust for maximum output.
100 MMF	"	1500KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		KNIGHT PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Converter	14Q7	14Q7	8AL	
2	IF Amp.	14A7	14A7	8W	
3	Det.-AVC-AF	14B6	14B6	8AA	Model 5A154
4A	Power Output	50A5	50A5	7AC	Model 5A152
B	Power Output	50L6GT	50L6GT		
5	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		KNIGHT PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
6A	40		DSB-2x40-150	TA-440	FRS150-40-40	Filter - Red
B	150					
7	40		S-4-05	TC-15	484-05	Line Filter
8	.05		S-4-02	TC-12	484-02	Output Plate Bypass
9	.02		S-4-02	TC-12	484-02	Audio Coupling
10	.005		S-6-005	TC-25	684-002	"
11	.02		S-4-02	TC-12	484-02	AVC Filter
12	.002		S-6-002	TC-22	684-002	Ant. Coupling
13	.2		S-4-2	TC-2	484-2	Line Isolation
14	250		M0.5-325	1FM-325	1469-00025	Audio Plate Bypass
15	250		M0.5-325	1FM-325	1469-00025	IF Bypass Vol. Cont.

CONTROLS

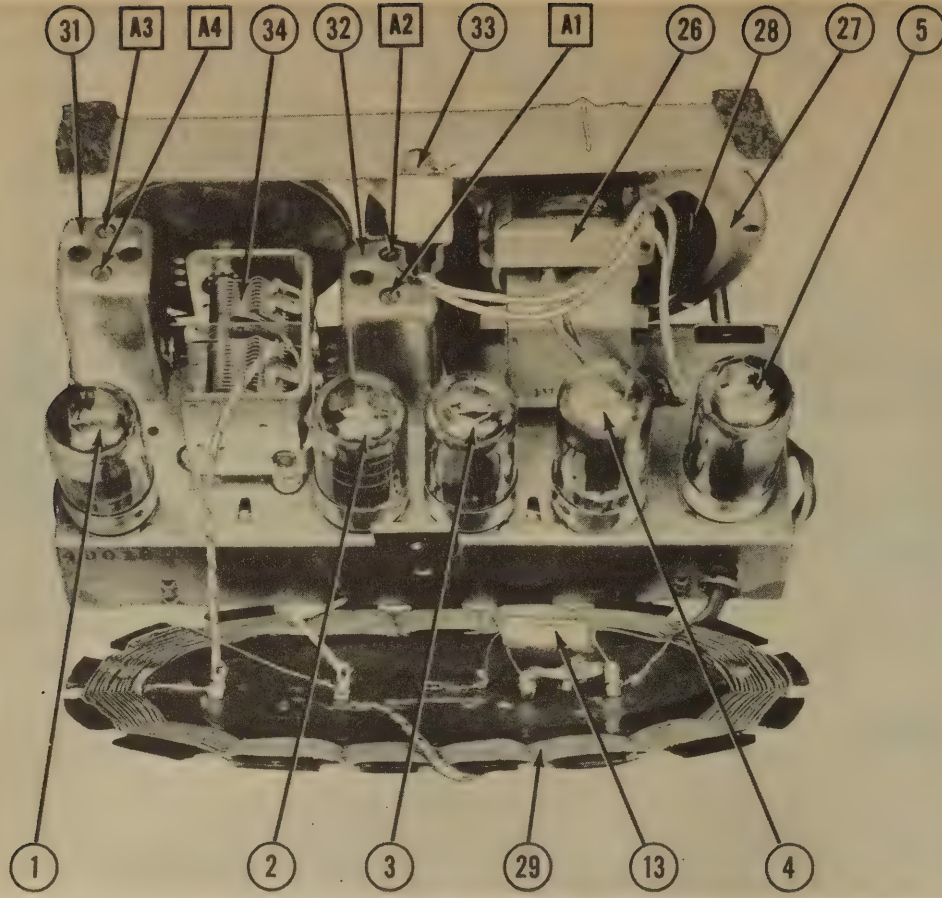
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		RESIST. ANCE	WATTS	KNIGHT PART No.	MALLORY PART No.	
16A	500K Ω	1		TK48	IRV48	Volume Control
B	Shaft				D13-135	Not Req.
C	Switch			N28	A	SW-A

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		RESISTANCE	WATTS	KNIGHT PART No.	IRC PART No.	
17	22K Ω	1		BTS-22K		Red-Red-Or. Oscillator Grid
18	10 Meg.	1		BTS-10 Meg.		Br.-Blk.-Blue AVC Network
19	3.3 Meg.	1		BTS-3.3 Meg.		Or.-Or.-Gm. AVC Network
20	10 Meg.	1		BTS-10 Meg.		Br.-Blk.-Blue AF Grid
21	470K Ω	1		BTS-470K		Yl.-Yl.-Yl. AF Plate Lead
22	470K Ω	1		BTS-470K		Yl.-Yl.-Yl. Output Grid
23	150K Ω	1		2W-1-150		Br.-Gm.-Br. Output Cathode
24	220K Ω	1		BTS-220K		Red-Red-Yl. Line Isolation
25	1000 Ω	2		BF-2-1000		Br.-Blk.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		IMPEDANCE	DC RES.	THORNDAR'N PART No.	
26	1700 Ω 3.3 Ω	155 Ω	.5 Ω	A-3876	
				T22845	
				B-11.037	



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		KNIGHT PART No.	JENSEN PART No.	
27	FIELD PM	VC IMP. 3-32	SM-105 Mod. P5-X	
28	CONC DIA. 4-5/8"	VC DIA. 1/2"		NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT.

R F COILS

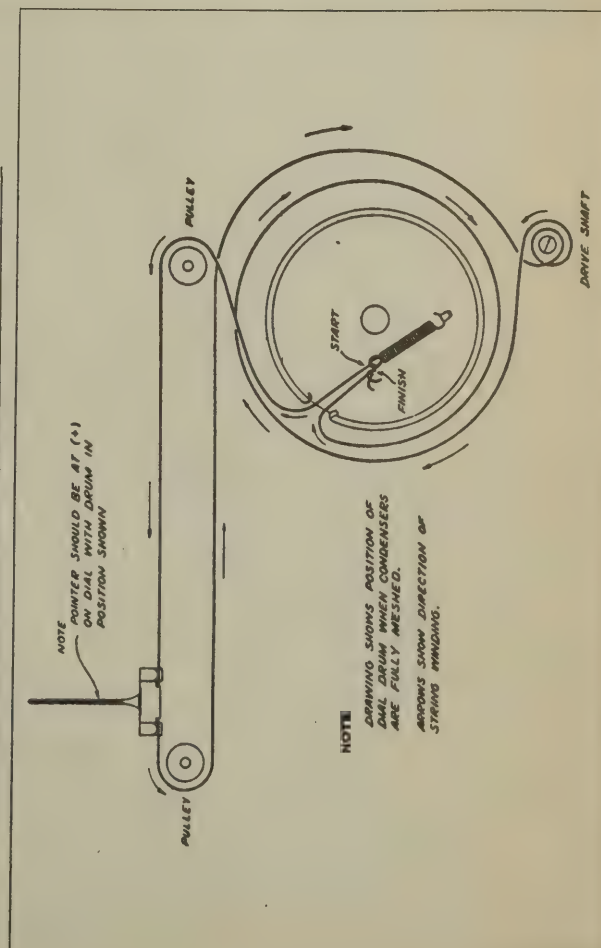
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	KNIGHT PART No.	MEISSNER PART No.	
29	Loop Ant.	1.3Ω		B5-006		
30	Osc. Coil	.8Ω	6-22	B2-192		*Add 50 MUF cap. to high side of tuning cap.
31	Input IF	21.5Ω	21Ω	C2-191-1	16-6666	
32	Output IF	14.2Ω	14.5Ω	C2-191-2	16-6667	

DIAL LIGHT

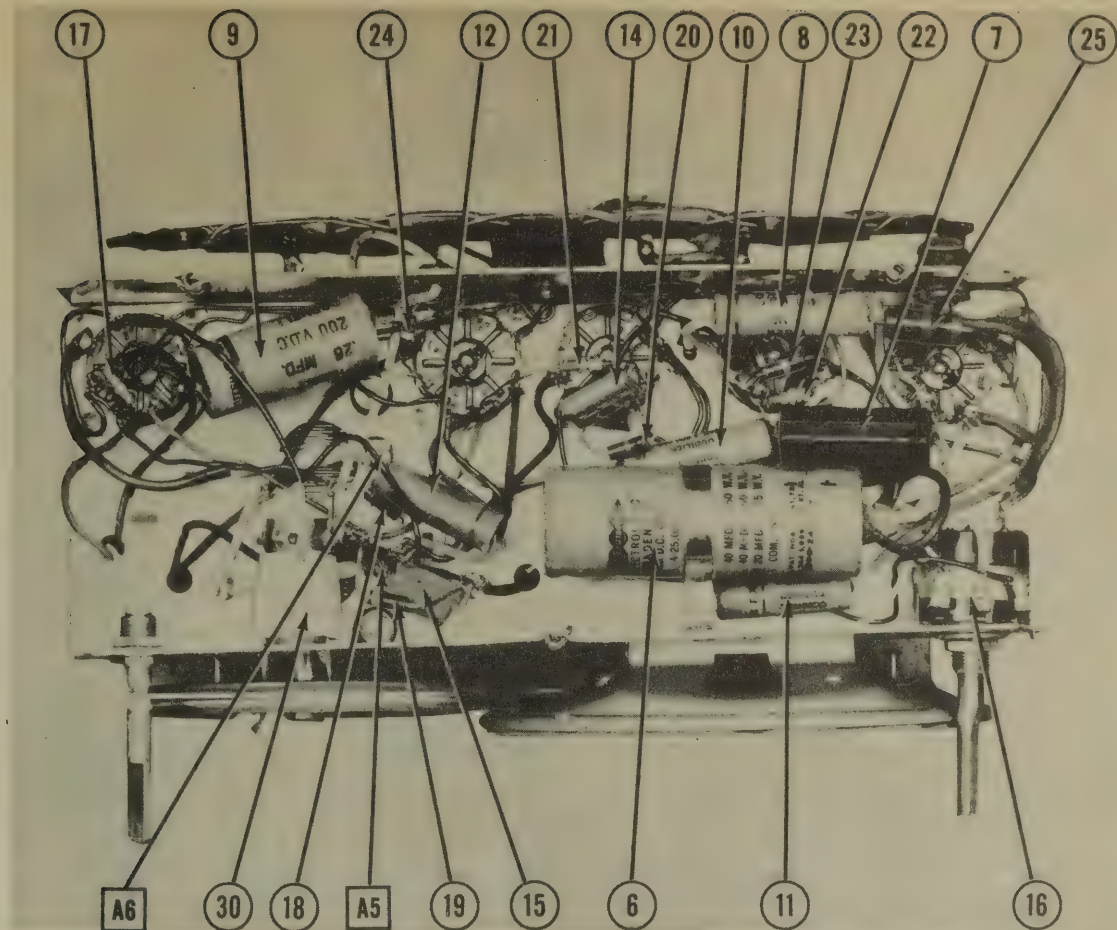
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	KNIGHT PART No.	
33A	Bayonet	6-8	0-15	Brown		Type 47 Model 5A154
B		6-8	0-2	White		Type 51 Model 5A152

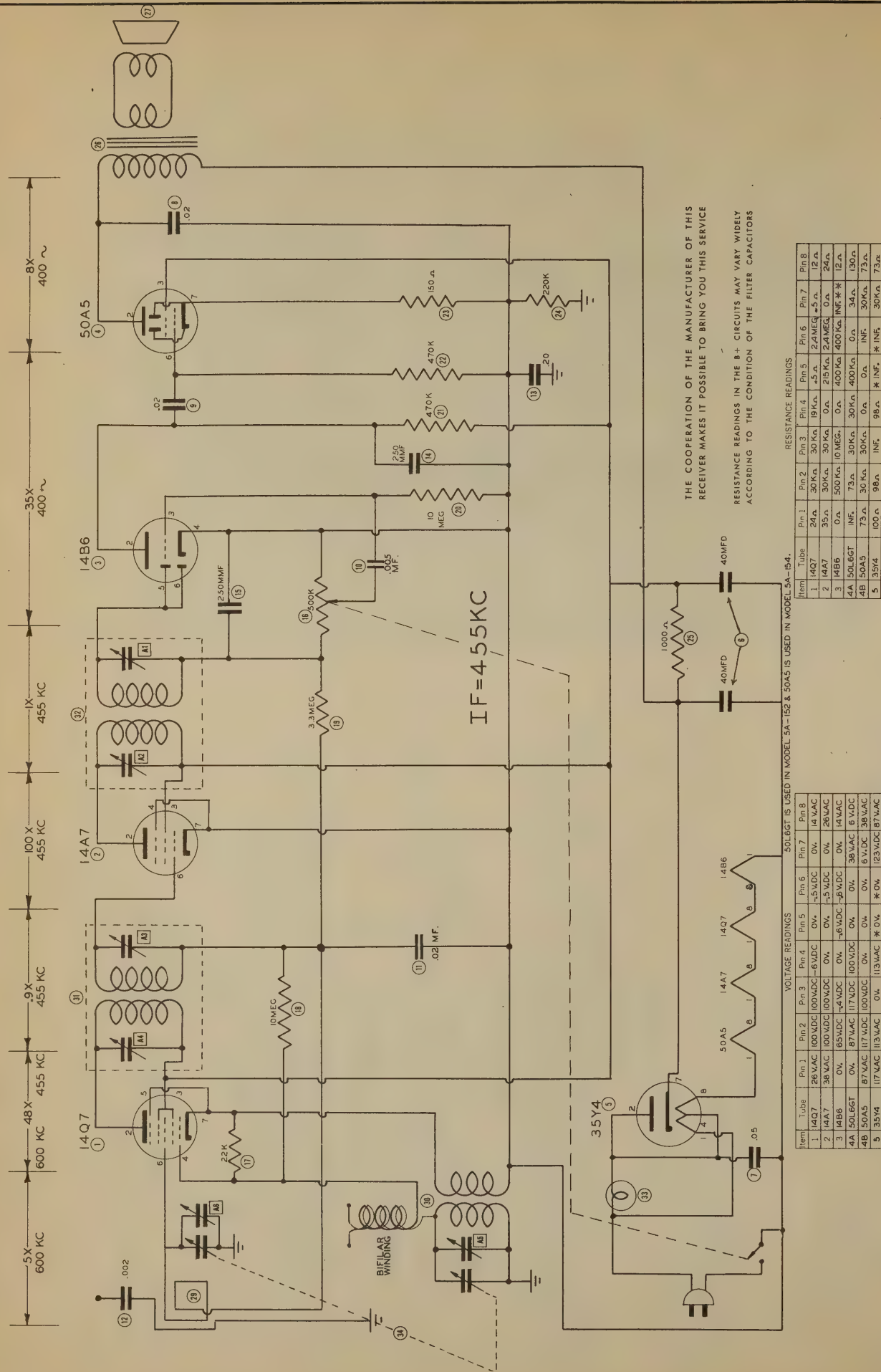
MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
34	2 Gang Var.Cap.	C-6-032	(22-410 MUF, 14-182 MUF)



CHASSIS—BOTTOM VIEW





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Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	25A	30K Ω	30 K Ω	19 K Ω	21 K Ω	2.4MEG	4.5	12
2	14AY	30A	30K Ω	30 K Ω	25 K Ω	2.4MEG	0.2	29A	12
3	14B6	0	500 K Ω	10 M Ω	400 K Ω	400 K Ω	INF	* 4	12
4A	15A16GT	INF.	73 Ω	30 K Ω	30 K Ω	400 K Ω	0	34	130
4B	50A9	73 Ω	30 K Ω	30 K Ω	0	0	INF.	30K Ω	73 Ω
5	35A4	100 Ω	98 Ω	INF.	98 Ω	* INF.	* INF.	30K Ω	73 Ω

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1457	26 VAC	100 VDC	100 VDC	6 VDC	0V	-5 VDC	0V	Pin 8
2	14A7	38 VAC	100 VDC	100 VDC	0V	0V	-5 VDC	0V	26 VAC
3	14B6	0V	65 VDC	-4 VDC	0V	-6 VDC	0V	4 VDC	6 VDC
4A	50L6GT	0V	87 VAC	117 VDC	10 VDC	0V	0V	38 VAC	4 VDC
4B	50A5	87 VAC	117 VAC	0V	0V	0V	6 VDC	38 VAC	6 VDC
5	35A4	117 VAC	113 VAC	0V	113 VAC	0V	0V	6 VDC	87 VAC

NOTES: USED AS TIE POINTS IN MODEL 5A-152. IN SOME MODELS 14B6 FILAMENT
* CONNECTIONS MAY BE REVERSED.
** RESISTANCE IS 0.2 IN MODEL 5A-152.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

MAGUIRE
MODEL 661, 661-A



TUNING CONTROL

VOLUME CONTROL
ON-OFF SWITCH

MAGUIRE
MODEL 661, 661-A

MAGUIRE MODEL 661

TRADE NAME	Maguire Models 661, 661-A					
MANUFACTURER	Maguire Industries Inc., W. Putnam Ave., Greenwich, Conn.					
TYPE SET	AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna					
TUBES (FIVE)	Types, 12SK7 RF Amp., 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output.					
POWER SUPPLY	105-125 Volts AC-DC					
TUNING RANGE—BROADCAST	530-1620KC		RATING		.235 Amp. @ 117 Volts AC	
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator to B-. Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	High freq. end. (Variable fully open).	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMF.	High side to ant. lead. Low side to B-.	1620KC	"	"	A5	" " " "
200 MMF.	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MAGUIRE PART No.	STANDARD REPLACEMENT		
1	RF Amp.	12SK7	12SK7	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7	12SK7	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	50L6GT	50L6GT	7AC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		MAGUIRE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
6A	CAP.	DSB-5030-150	TA-530	PRSA150-40	40	Filter - Red
7	150	S-4-05	TC-15	484-05	DT455	Line Filter
8	30	S-4-1	TC-1	484-1	DT451	RF Bypass Pwr. Supp.
9	1	S-4-01	TC-11	484-01	DT451	Output Plate Bypass
10	400	S-4-01	TC-11	484-01	DT451	Audio Coupling
11	200	S-4-05	TC-15	484-05	DT455	AVC Filter
12	200	S-4-2	TC-2	484-2	DT451	Line Isolation
13	200	S-4-01	TC-11	484-01	DT451	Ant. Coupling
14	200	M0.5-31	1FM-31	1468-0001	SW5T1	Audio Plate Bypass
15	500	M0.5-31	1FM-31	1468-0001	SW5T1	Osc. Grid Capacitor
16	100	M0.5-45	1FM-45	1468-00005	SW5Q5	RF Coupling
17	47					

CONTROLS

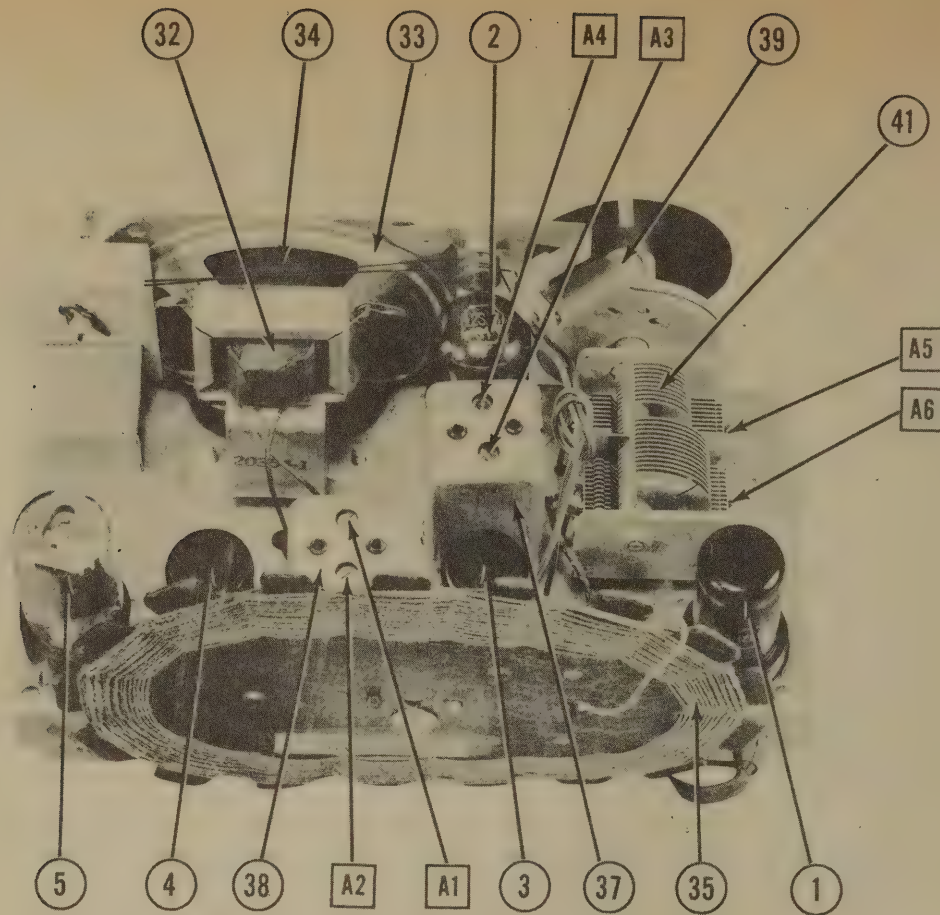
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MAGUIRE PART No.	MALORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	500KΩ B Shunt C Switch	1	MR48	D13-133	M-60-Z	Volume Control
			Not Req.	A	Not Req.	Attach to 18A per instructions
			M26	41	SW-A	" " " " " "

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		MAGUIRE PART No.	IRC PART No.	
19	1500Ω		BTS-1500	Br.-Grn.-Red RF Plate Load
20	470KΩ		BTS-470K	YL-V1-Y1. Converter Grid
21	22KΩ		BTS-22KΩ	Red-Red-Or. Oscillator Grid
22	220KΩ		BTS-220K	Red-Red-YL. Line Isolation
23	2.2 Meg.		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
24	10 Meg.		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
25	220KΩ		BTS-220K	Red-Red-YL. AF Plate Load
26	470KΩ		BTS-470K	YL-V1-Y1. Output Grid
27	27Ω		BW-2-27	Br.-Grn.-Br. Output Cathode
28	100Ω		BW-2-100	Red-V1-Blk. Pilot Light Shunt
29	100Ω		BW-2-100	Br.-Blk.-Br. Rectifier Ballast
30	100Ω		BW-2-100	Br.-Blk.-Br. Line Dropping
31	1500Ω		BT-2-1500	Br.-Grn.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		MAGUIRE PART No.	STANCOR PART No.	THORDARN PART No.	
32	IMPEDANCE PRI. SEC. PRI. SEC. 2.6Ω 200Ω 4.42Ω 200Ω	B-20371	A-3876*	T22845*	*Bend mounting tabs down, file out slots and mount on original bracket.



PARTS LIST AND DESCRIPTIONS (Continued) SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		MAGUIRE PART No.	JENSEN PART No.	
33	FIELD 2.50	6-20354-1	ST-1131 Mod. P4-X	Fabricate new mounting bracket.
34	CONE DIA. 2 1/4"			NOT READILY REPLACEABLE-USE COMPLETE UNIT.

R F COILS

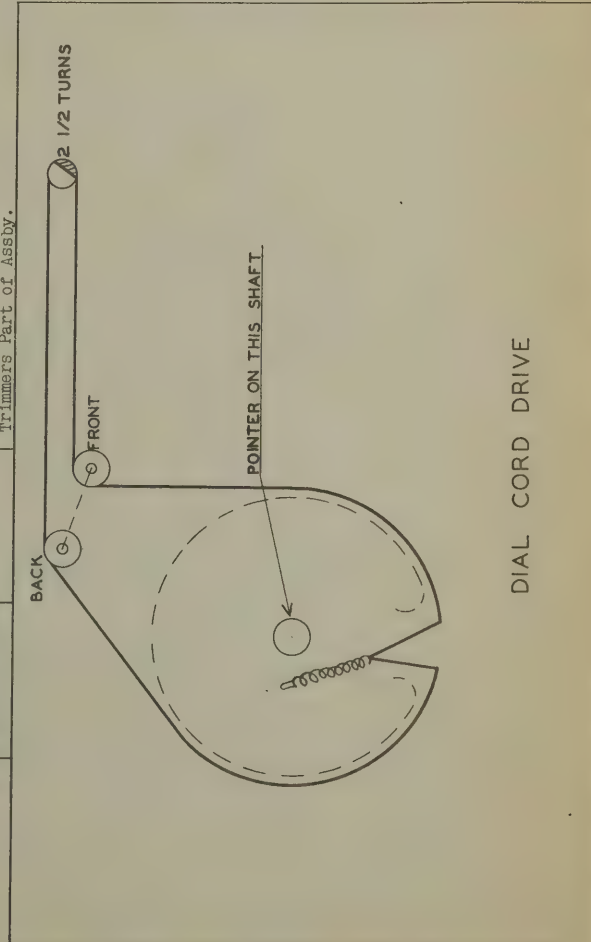
ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		DC RES.	MAGUIRE PART No.	MEISSNER PART No.	
35	Loop Ant.	PRI. SEC.	B14123	14-1040	
36	Osc. Coil	5.58	03963	16-6558	
37	Input IF	23.88	03964	16-6870	
38	Output IF	212	05143		

DIAL LIGHT

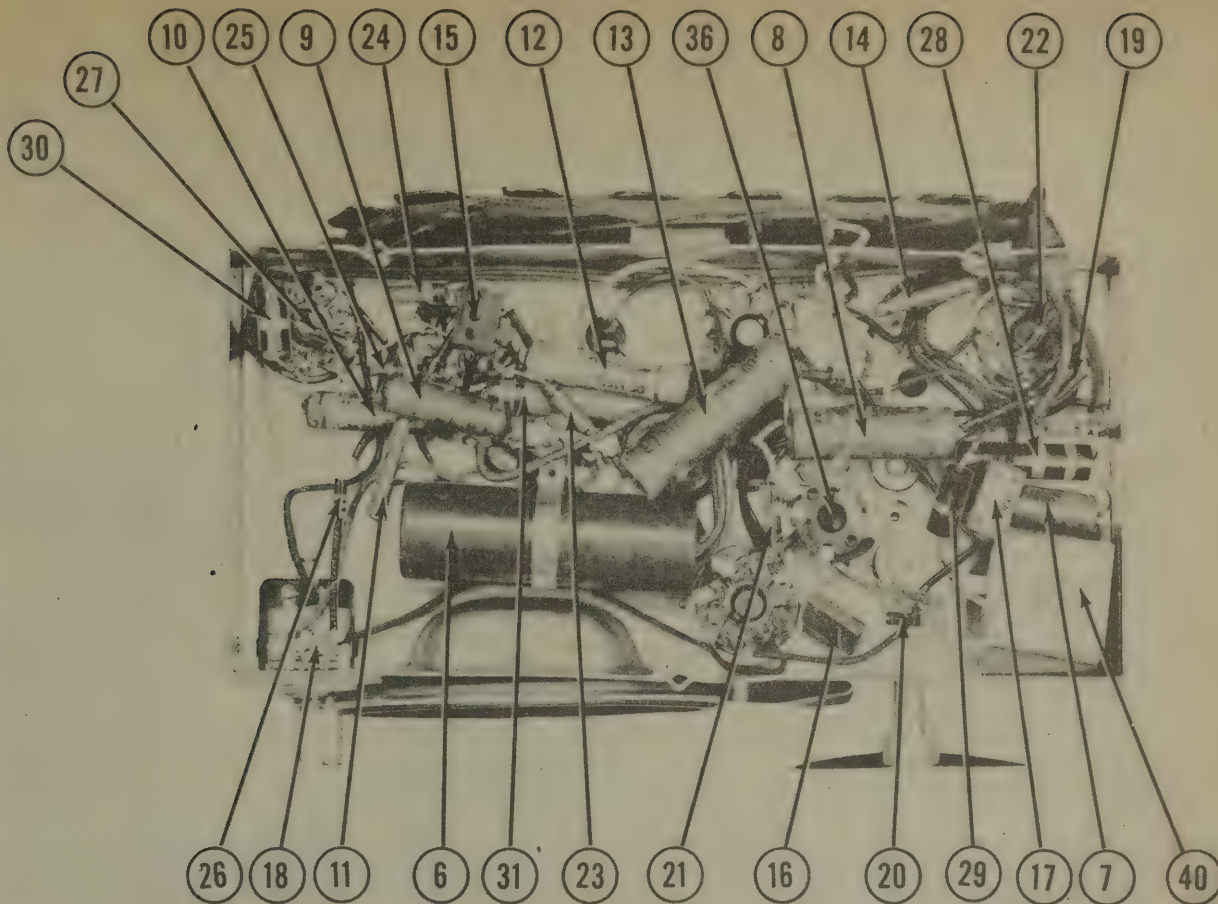
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MAGUIRE PART No.		
39	Bayonet	6-8	0.15	Brown			Type 47

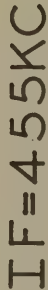
MISCELLANEOUS

ITEM No.	PART NAME	MAGUIRE PART No.	NOTES
40	Selenium Rect.	29375	
41	2 Gang Var. Cap.		(41-465 MMF. 35-202 MMF.) Trimmers Part of Assy.



CHASSIS—BOTTOM VIEW





Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	46VAC	0V.	-4VDC	0V.	70VDC	34VAC	60VDC
2	12SA7GT	0V.	23VAC	70VDC	70VDC	-3.7VDC	0V.	11VAC	-4VDC
3	12SK7GT	0V.	34VAC	0V.	-4VDC	0V.	70VDC	23VAC	70VDC
4	12SQ7GT	0V.	-6VDC	0V.	-2VDC	-4VDC	49VDC	11VAC	0V.
5	50L6GT	0V.	97VAC	116VDC	70VDC	0V.	113VAC	44VAC	45VDC

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	190K Ω	46 Ω	0 Ω	2.6MEG Ω	0 Ω	150K Ω	35 Ω	150K Ω
2	12SA7GT	190K Ω	23 Ω	150K Ω	150K Ω	20K Ω	5 Ω	12 Ω	3MEG Ω
3	12SK7GT	190K Ω	35 Ω	0 Ω	2.6MEG Ω	0 Ω	150K Ω	23 Ω	150K Ω
4	12SQ7GT	190K Ω	10MEG Ω	0 Ω	410K Ω	2.6MEG Ω	370K Ω	12 Ω	0 Ω
5	50L6GT	190K Ω	90 Ω	150K Ω	150K Ω	390K Ω	190 Ω	5 Ω	150 Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of 10% in voltage and resistance readings.
6. Voltage control at maximum, no signal applied for voltage measurements.

MECK (PLYMOUTH)
MODELS PM-5C5-PW-10



MECK (PLYMOUTH)
MODELS PM-5C5-PW-10

MECK (PLYMOUTH) MODEL PM-5C5-PW-10

TRADE NAME	Meck (Plymouth) Model PM-5C5-PW-10					
MANUFACTURER	John Meck Industries, Plymouth, Indiana					
TYPE SET	AC Operated Combination Radio-Phonograph - Superheterodyne Receiver					
TUBES (FIVE)	Types, 14Q7 or 12SA7 Converter, 14A7 or 12SK7 IF Amp., 14B6 or 12SQ7 Det.-AVC-AF, 50B5 or 50L6GT Power Output, 35Y4 or 35Z5GT Rectifier.					
POWER SUPPLY	110-125 Volts AC					
TUNING RANGE—BROADCAST	550-1600KC		RATING		.240 Amp. @ 117 Volts AC	
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
To adjust pointer turn tuning control fully clockwise and set pointer to last reference mark at low frequency end. Use isolation transformer if available. If not, connect a capacitor in series with low side to chassis. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to pin 8 (grid) of 12SA7. Low side to chassis.	455KC	High freq. end.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
	Loop	1600KC	1600KC	"	A5	Fashion loop from few turns of wire and radiate signal into set. Adjust for maximum output
	"	1400KC	Tune for maximum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

TUBES

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		MECK PART No.	STANDARD REPLACEMENT	RVA BASE TYPE	
1	Converter	14Q7 12SA7	14Q7 12SA7	8AL	Lock-In Type
2	IF Amp.	14A7 12SK7	14A7 12SK7	8R 8N	Octal Type
3	Det.-AVC-AF	14B6 12SQ7	14B6 12SQ7	8W 8Q	
4	Power Output	50A5 50L6GT	50A5 50L6GT	6AA 7AC	
5	Rectifier	35Y4 35Z5GT	35Y4 35Z5GT	5AL 6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		MECK PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNEILL-DUBILIER PART No.	
6A	20	CP14503	DSB-3X20-150	TPSA150-20	TPSA150-20	FZ2215	Filter - Green
7	150	CP14503	UT-201	PRS150-20	PRS150-20	4R2015	Output Plate Bypass
8	400	CP14503	S-4-05	TC-15	484-05	DT455	Audio Coupling
9	400	CP14503	S-6-03	TC-13	484-03	DT453	"
10	400	CP14503	S-4-01	TC-11	484-01	DT451	Tone Compensation
11	400	CP14503	S-4-02	TC-12	484-02	DT452	Osc. Coupling
12	400	CP14503	S-4-01	TC-11	484-01	DT451	AVC Filter
13	400	CP14503	S-4-05	TC-15	484-05	DT455	Line Filter
14	400	CP14503	LFM-325	TC-15	484-05	5M5T25	Audio Plate Bypass
15	250	CM15251	M0.5-325	1FV-325	1468-00025	MC240	IF Bypass Vol. Cont.
16	300	CM15301	M0.5-33	MS-33	1468-00033	5M5T3	Osc. Anode Coupling
17	25	CM15250	M0S.5-425	MS425	1468-00025	5M5T25	Fixed Trimmer

CONTROLS

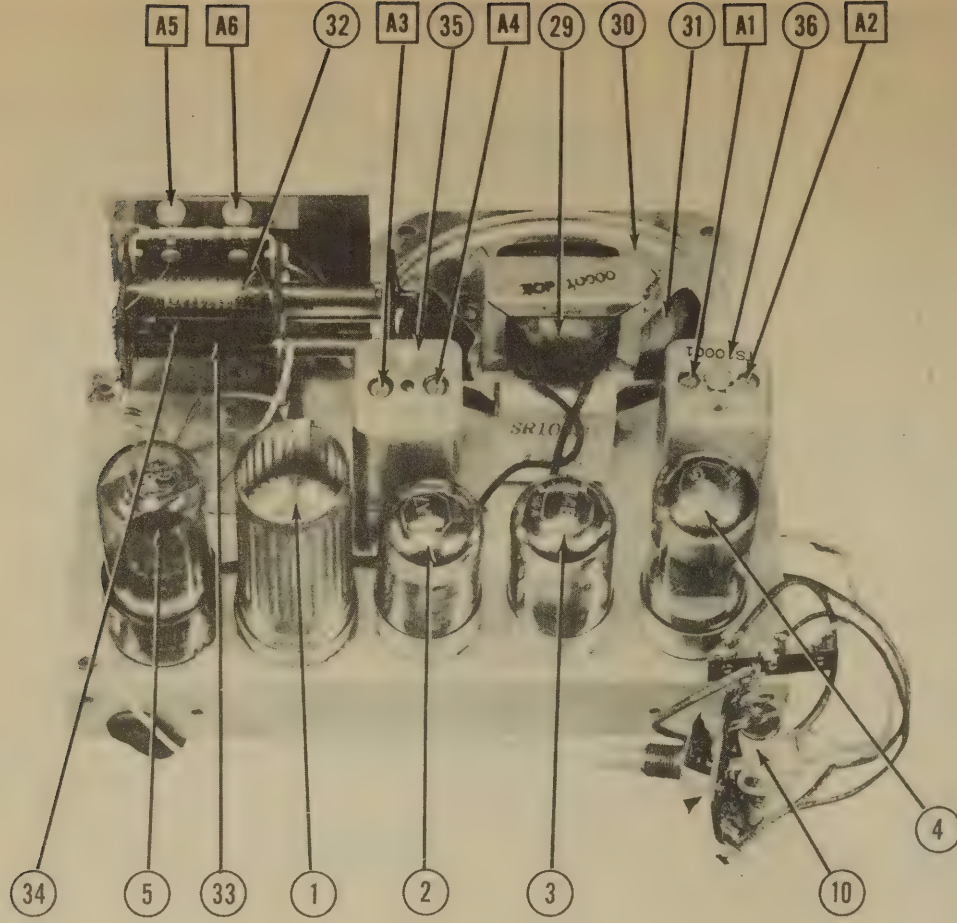
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MECK PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	1 Meg.	VC-10105	MK402	D13-137	AM-63-Z	Volume Control-See Note 1
18B	500KΩ	Not Req.	M26	E 41	KSS-3	Attach to 18A per instructions
18C	1	Not Req.	MK401	D13-133	AM-60-Z	Volume Control-See Note 2
18D	1	Not Req.	M26	E 41	KSS-3	Attach to 18A per instructions

Note 1 - Used in early production
Note 2 - Used in later production

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		MECK PART No.	WATTS	IRC PART No.	
19	20KΩ	RC-32002	1	BTS-22K	Red-Blk.-Or. Oscillator Grid
20	3900Ω	RC-34001	1	BTS-3900	Or.-White-Red Screen Dropping
21	2.2 Meg.	RC-31005	1	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
22	10 Meg.	RC-31005	1	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
23	240KΩ	RC-35003	1	BTS-220K	Red-Yl.-Yl. AF Plate Load
24	500KΩ	RC-31500	1	BW-4-150	Grn.-Blk.-Yl. Output Grid
25	150Ω	RC-31001	1	BTS-470K	Br.-Grn.-Br. Output Cathode
26	1000Ω	RC-32000	1	BTS-1000	Red-Blk.-Br.
27	200Ω	RC-32000	1	BW-4-200	Red-Blk.-Br.
28	100KΩ	RC-32000	1	BTS-100K	Br.-Blk.-Yl. 1st IF Transformer Shunt-See Note 3

Note 3 - Not used in all models.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		MECK PART No.	STANCOR THORDARN PART No.	
29	2100	3.25	186	70-10000	A-3676*	T2S45*

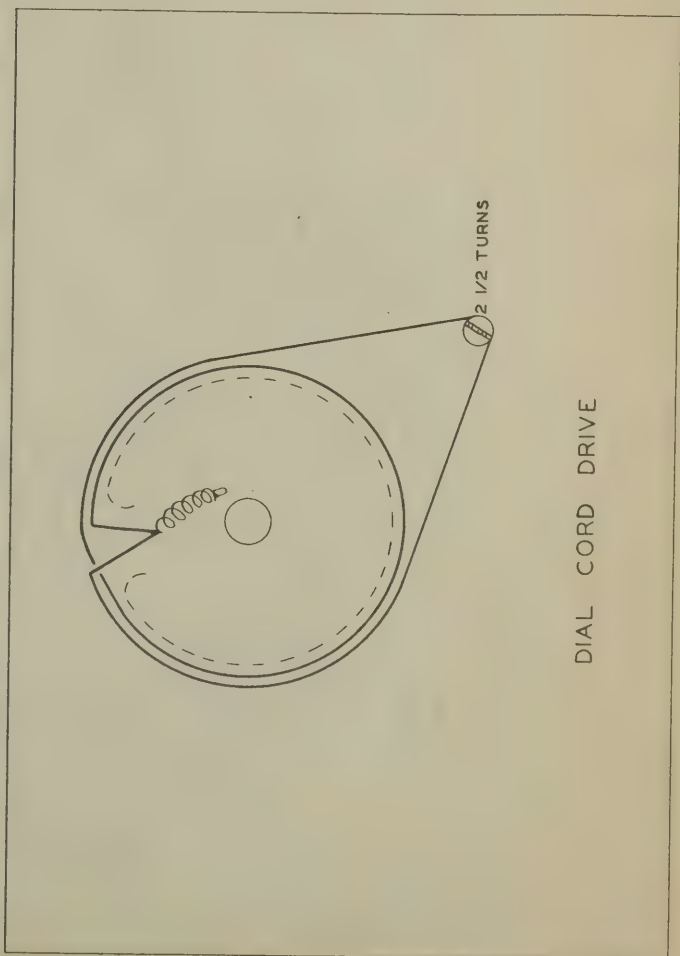
*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

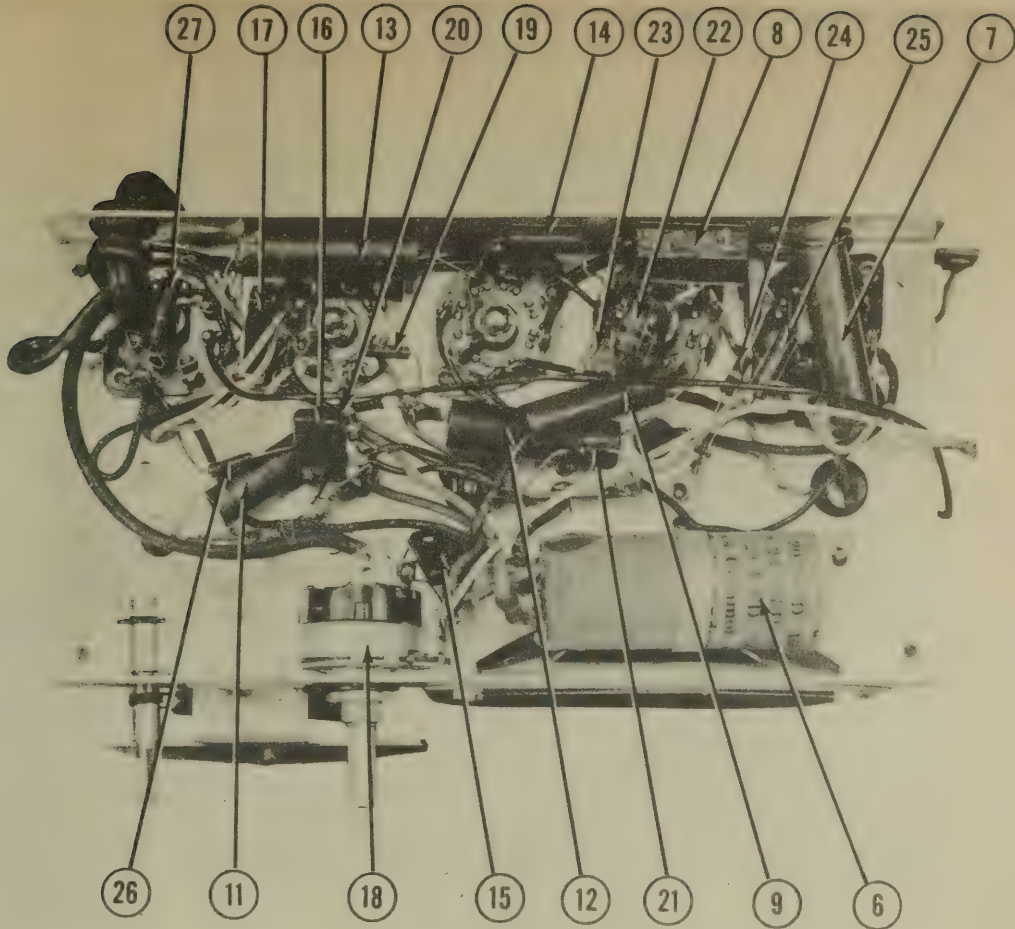
ITEM No.	RATINGS			REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.		MECK PART No.	JENSEN PART No.	
30	PM	3.25		SR-10000	ST-113	
	CONC DIA.	VC DIA.			Mod. P4-X	
31	3-15/16"	1/2"		NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT.		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	MECK PART No.	MEISSNER PART No.	
31	Ant. Coil	4.5				
32	Osc. Coil	6				
33	Osc. Comp.	8.5				
34	Input IF	20	20	TS10000	16-6668	Part of Tuner Assembly Part #VP10000
35	Output IF	19	19	TS10001	16-6669	" " " " " " " "

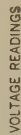


CHASSIS—BOTTOM VIEW



MECK MODEL
PM-5C5-PW-10

MECK MODEL
PM-5C5-PW-10



Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	12VAC	102 VDC	77 VDC	-12 VDC	0V	-12 VDC	0V	24VAC
2	14J7	35VAC	102 VDC	69 VDC	0V	0V	-6 VDC	0V	24VAC
3	14B6	12 VAC	72 VDC	-4 VDC	0V	0V	-3 VDC	-2.6 VDC	0V
4	50A5	35VAC	120VDC	112 VDC	0V	0V	0V	6.3 VDC	82 VAC
5	35Z5GT	117 VAC	110 VAC	125 VDC	117 VAC	0V	0V	8 VAC	135 VDC

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE TRAINING

		RESISTANCE READINGS									
	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	
1	14Q7	12A	3 MEG.	3 MEG.	3 MEG.	18 K Ω .	0 Ω .	28 MEG.	0 Ω .	25 Ω .	
2	14A7	36 Ω	3 MEG.	3 MEG.	3 MEG.	0 Ω .	0 Ω .	28 MEG.	0 Ω .	25 Ω .	
3	14B6	12 Ω	3.3 MEG.	3.3 MEG.	10 MEG.	0 Ω .	450 K Ω .	2.6 MEG.	0 Ω .	0 Ω .	
4	50A5	36 Ω	3 MEG.	3 MEG.	3 MEG.	3 MEG.	INF.	480 K Ω .	140 Ω .	80 Ω .	
5	35Z5GT	INF.	110 Ω .	103 Ω .	103 Ω .	3 MEG.	110 Ω .	INF.	0 Ω .	3 MEG.	

472-19

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Normal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MINERVA
MODEL W-702B, L-702



MINERVA
MODEL W-702B, L-702

MINERVA MODEL W-702B

TRADE NAME Minerva, Models W-702B, L-702 MANUFACTURER Minerva Corp. of America, 238 William St., New York, N.Y. TYPE SET AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna TUBES (SIX) Types, 12SK7 or 14A7 RF Amp., 12SA7 or 14Q7 Converter, 12SK7 or 14A7 IF Amp., 12SQ7 or 14B6 Det.-AVC-AF, 35L6 or 35A5 Power Output, 35Z5 or 35Y4 Rectifier.						
POWER SUPPLY 105-125 Volts AC-DC TUNING RANGE-BROADCAST 540-1640 KC						
RATING .245 Amp. @ 117 Volts AC						
ALIGNMENT INSTRUCTIONS-READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT To set pointer turn variable fully closed and adjust pointer to last reference mark to left of dial back plate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjustments.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to sta- tor of rear sec- tion of variable. Low side to chassis.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy to .001 MFD to reduce hum modulation.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1400KC	Last reference mark to right on dial back- plate.	"	A5	Adjust for maximum output.
200MMFD	"	"	Tune for maxi- mum output.	"	A6	" " " "

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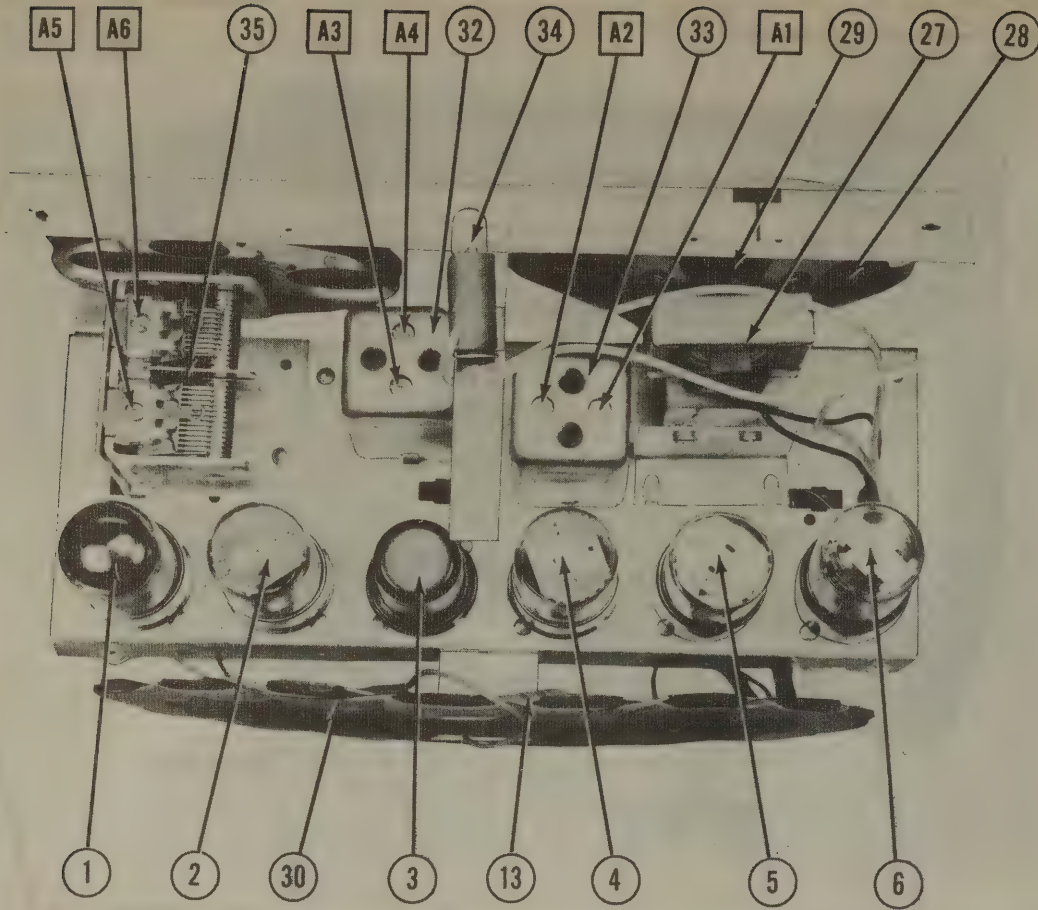
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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW



ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		MINERVA PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1A	RF Amp.	12SK7GT	12SK7GT	8N	
2A	Converter	14A7	14A7	8V	
3A	IF Amp.	12SA7GT	12SA7GT	8AD	
4A	Det.-AVC-AF	14Q7	14Q7	8AL	
5A	Power Output	12SK7	12SK7	8N	
6A	Rectifier	14A7	14A7	8V	
		12SQ7GT	12SQ7GT	8Q	
		14B6	14B6	8M	
		35L6GT	35L6GT	7AC	
		35A5	35A5	6A	
		35Z5GT	35Z5GT	6AD	
		35Y4	35Y4	5AL	

CAPACITORS Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MINERVA PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNEILL-DUBILIER PART No.	
7A	40	150		DSB-2X40-150	TA-440	PRSA150-40	BRD4415	Filter - Red
8	40	150						" - Green
9	400	400		S-4-05	TC-15	484-05	DT455	Line Filter
10	400	400		S-4-01	TC-11	484-01	DT451	Output Plate Bypass
11	400	400		S-4-01	TC-11	484-01	DT451	Audio Coupling
12	400	400		S-4-05	TC-15	484-05	DT455	" "
13	400	400		S-4-01	TC-11	484-01	DT455	AVC Filter
14	300	500		MO-5-33	LFM-33	1468-0003	SW5T3	Ant. Coupling
15	300	500		MO-5-33	LFM-33	1468-0003	SW5T3	Audio Plate Bypass
16	300	500		MO-5-33	LFM-33	1468-0003	SW5T3	IF Bypass Vol. Cont.
								RF coupling

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MINERVA PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	500KΩ		MR48	D13-1133	M-30-Z	Volume Control
18	1		Not Req.	A	Not Req.	Attach to 17A per instruction
19	Shaft		M26	41	SW-4	" " " " " "

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		MINERVA PART No.	IRC PART No.	STANDARD REPLACEMENT	
18	1000Ω		BTS-1000	BTS-1000	Br.-Blk.-Red RF Plate Load
19	47KΩ		BTS-47K	BTS-47K	Y1.-V1.-Or. Converter Grid Load
20	20KΩ		BTS-22K	BTS-22K	Red-Blk.-Or. Oscillator Grid
21	2.2 Meg.		BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
22	10 Meg.		BTS-10 Meg.	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
23	330KΩ		BTS-330K	BTS-330K	Or.-Or.-Y1. 1st AF Plate Load
24	470KΩ		BTS-470K	BTS-470K	Y1.-V1.-Y1. Output Grid
25	220Ω		BW-4-220	BW-4-220	Red-Red-Br. Output Cathode
26	1000Ω		BTA-1000	BTA-1000	Br.-Blk.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	IMPEDANCE	RATING	REPLACEMENT DATA			INSTALLATION NOTES
			MINERVA PART No.	STANCOR PART No.	THORDARN PART No.	
27	2300Ω	3.52 PRI. 160Ω SEC.		A-3876*	T22945*	*Bend mounting tabs down, file out slots and mount on original bracket.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		MINERVA PART No.	JENSEN PART No.	
28	FIELD PM VC IMP. 3-5Ω	15-9	ST-1051 Mod. PB-X	Fabricate new mounting bracket.
29	VOICE DIA. VC DIA. 1 1/2"	NOT READILY REPLACEMENT-USE COMPLETE SPEAKER UNIT.		

R F COILS

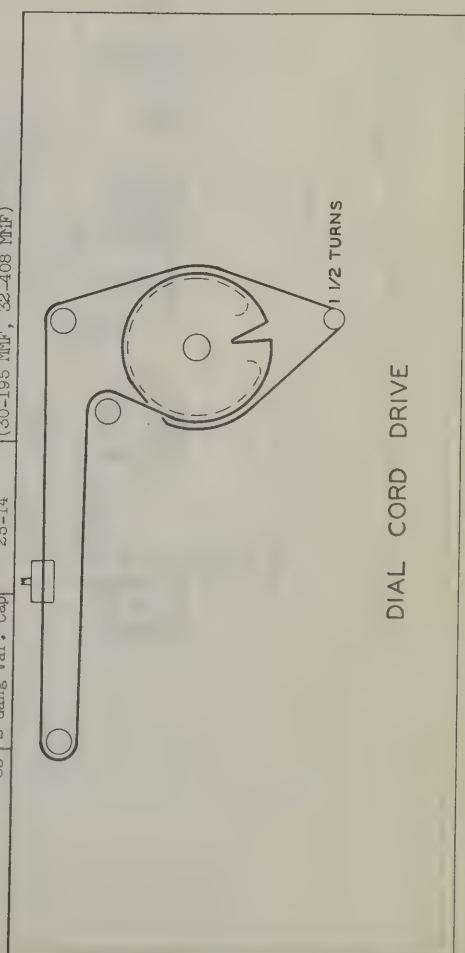
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PREL.	SEC.	MINERVA PART No.	MEISSNER PART No.	
30	Loop	.5Ω	1-5Ω	5-20	14-1040*	*Add 50 MMFD Cap from grid to high side tuning cap.
31	Osc. Coil	4Ω	4Ω	5-19	16-6658	
32	Input IF	31Ω	31Ω	20-14	16-6660	
33	Output IF	30Ω	30.5Ω	20-15		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MINERVA PART No.		
34	Bayonet	6-8	0.15	Brown			Type 47

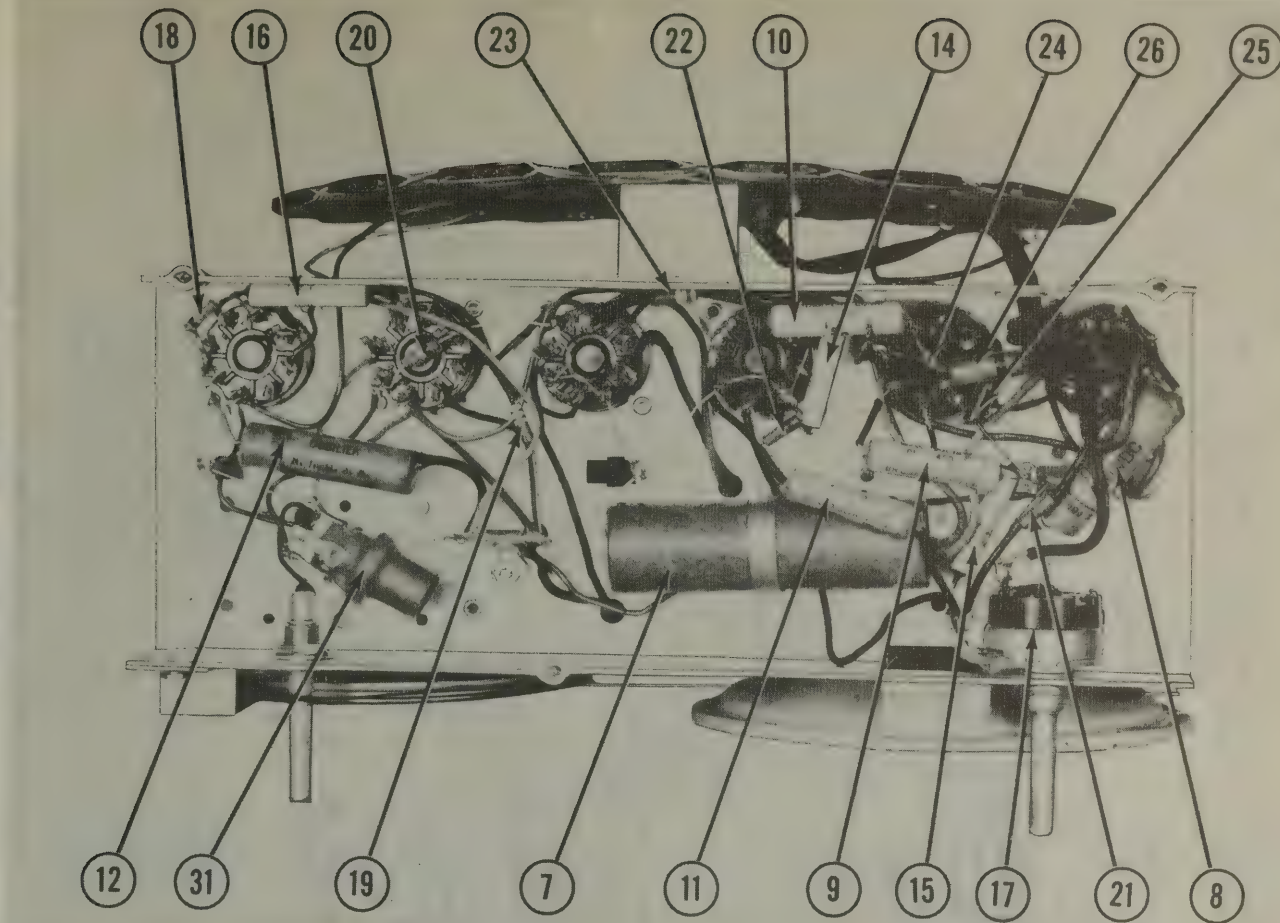
MISCELLANEOUS

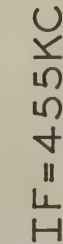
ITEM No.	PART NAME	MINERVA PART No.	NOTES
35	2 Gang Var. Cap	25-14	(30-195 MMF, 32-408 MMF)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0A	24A	0A	2.3MEG	0A	200 K Ω	34A	200 K Ω
2	12SA7GT	0A	12A	200 K Ω	2.3MEG	18K Ω	3A	24A	2.3MEG
3	12SK7	0A	34A	0A	2.3MEG	0A	200 K Ω	24A	200 K Ω
4	12SQ7GT	0A	9 WEG	0A	390 K Ω	390 K Ω	530 K Ω	12A	0A
5	15L6GT	0A	44A	200 K Ω	200 K Ω	42 K Ω	INF.	75A	230 A
6	35Z5GT	INF.	98A	96A	INF.	96A	2.3MEG	75A	200 K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

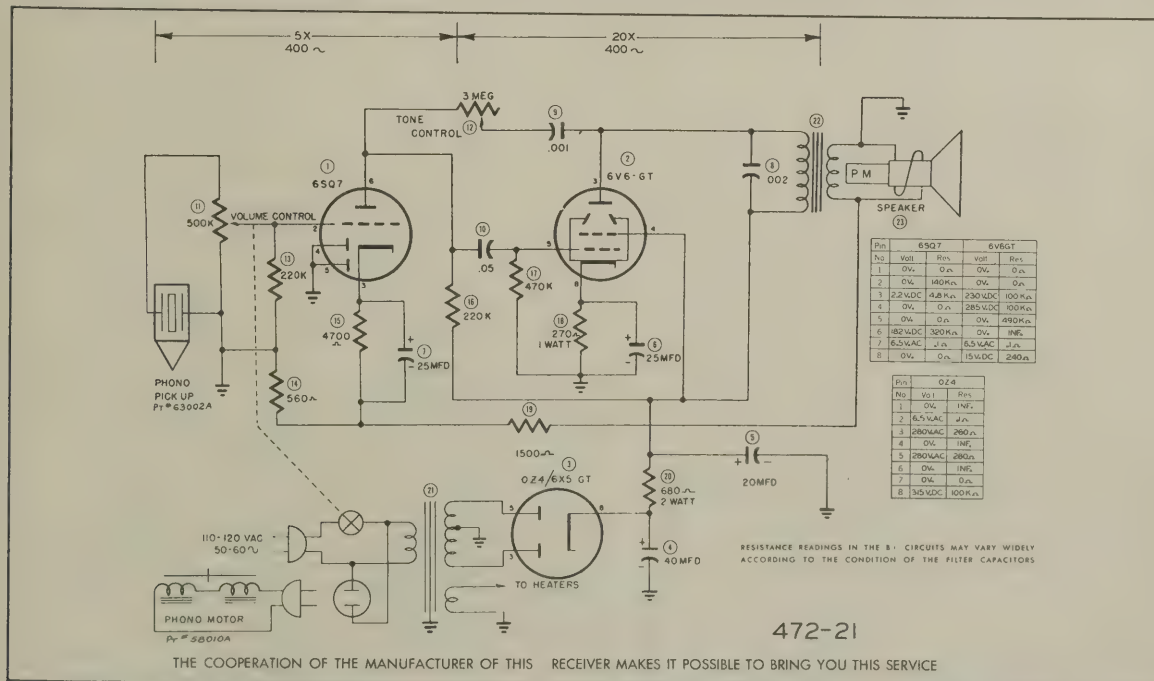
472-20

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Voltage control at maximum, no signal applied for voltage measurements.



PACKARD-BELL MODEL C-1362

TRADE NAME Packard-Bell, Model C-1362
MANUFACTURER Packard-Bell Co., 3443 Wilshire Blvd., Los Angeles, Calif.
TYPE SET AC Operated Phonograph with 3-Tube Amplifier & Speaker
TUBES (THREE) Types, 6SQ7GT Voltage Amp., 6V6GT Power Output, 6X5GT Rectifier
POWER SUPPLY 110 - 120 Volts AC RATING .300 Amp. @ 117 Volts AC



1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PACKARD-BELL PART No.	STANDARD REPLACEMENT		
1	Voltage Amp.	65Q7	65Q7	8Q	
2	Power Amp.	6V6GT	6V6GT	7AC	
3	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		PACKARD-BELL PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
4	40	24017	M-40-350	EL-5	BR4045	TC78
5	350	24003	M-20-350	UT-203	PR5450-20	TC65
6	20	25	M-25-25	TA-25	PR5450-25	TC65
7	25	24006	M-25-25	TA-25	PR525-25	TC28
8	25	24006	M-25-25	TA-25	PR525-25	TC28
9	.002	600	23002	S-6-002	684-002	TP405
10	.001	600	23001	S-6-001	684-001	TP404
11	.05	900	23010	TC-15	684-05	TP415

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PACKARD-BELL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
11A	500KΩ	1	25007	Not Req.	AM-60-Z	Volume Control
11B	Switch	1	25007	Not Req.	FS-3	Attach to 11A per instructions
12A	3 Meg.	1	25503	Not Req.	SW-A	Tone Control
12B	Shaft	1	25503	Not Req.	AM-67-Z	Attach to 12A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		PACKARD-BELL PART No.	IRC PART No.	
13	220KΩ	73049	BTS-220K	Red-Red-VI. AF Grid
14	560Ω	73022	BTS-560	Grn.-Blue-Br. AF Cathode
15	4700Ω	73033	BTS-4700	VI.-VI.-Red AF Cathode
16	220KΩ	73049	BTS-220K	Red-Red-VI. AF Plate Load
17	470KΩ	73051	BTS-470K	VI.-VI.-I. Output Grid
18	470Ω	73074	BM-1-270	Red-VI.-Br. Output Cathode
19	1500Ω	73201	BTS-1500	Br.-Grn.-Red Feedback
20	680Ω	73121	BT-2-680	Blue-Gray-Br. Filter

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA	
	PRI.	SEC. 1	SEC. 2	PACKARD-BELL PART No.	THORDARSON PART No.
21	117VAC @ .3A	560V CT 8.5V AC @ 1.2A		89008	P-6119

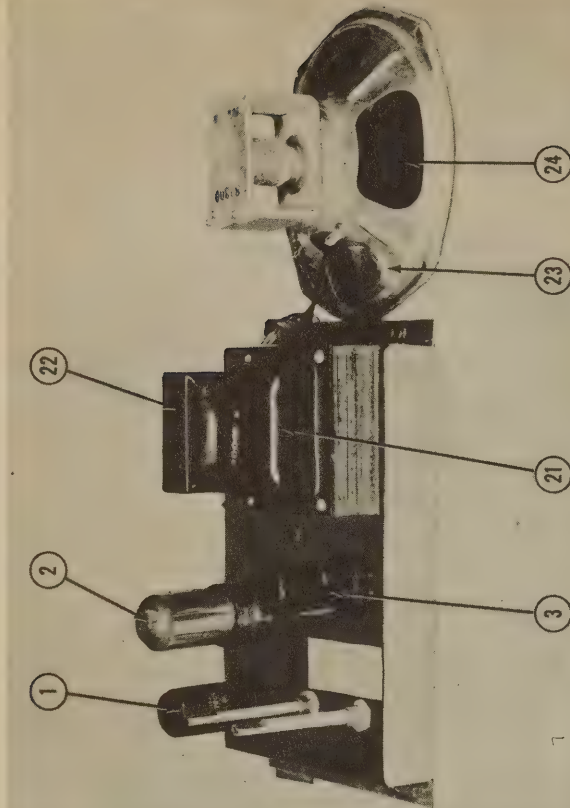
TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		PACKARD-BELL PART No.	THORDARSON PART No.	
22	5500Ω	3.5Ω	800Ω	89405	A-3877*	T22858

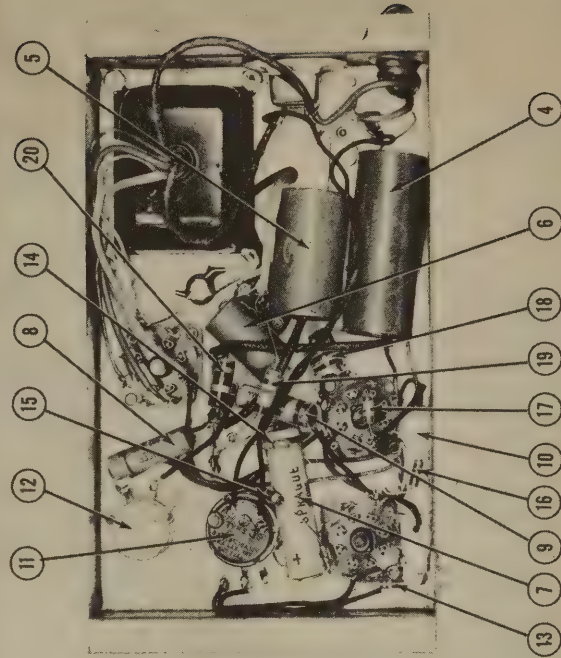
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	PACKARD-BELL PART No.	JENSEN PART No.	
23	PM	3.5Ω	B3003	ST-111	
24	CONE DIA.	VC DIA.	NOT READY TO REPLACE	Mod. P3-J	

CHASSIS—TOP VIEW



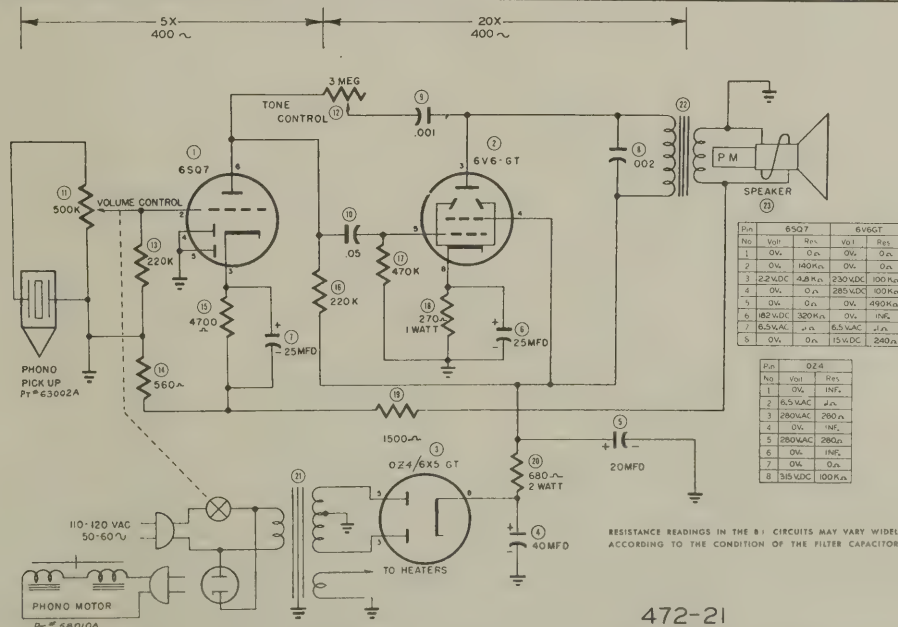
CHASSIS—BOTTOM VIEW





PACKARD-BELL MODEL C-1362

TRADE NAME Packard-Bell, Model C-1362
MANUFACTURER Packard-Bell Co., 3443 Wilshire Blvd., Los Angeles, Calif.
TYPE SET AC Operated Phonograph with 3-Tube Amplifier & Speaker
TUBES (THREE) Types, 6SQ7GT Voltage Amp., 6V6GT Power Output, 6X5GT Rectifier
POWER SUPPLY 110 - 120 Volts AC RATING .300 Amp. @ 117 Volts AC



472-21

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PACKARD-BELL PART No.	STANDARD REPLACEMENT		
1	Voltage Amp.	6SQ7	6SQ7	8Q	
2	Power Amp.	6V6GT	6V6GT	7AC	
3	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PACKARD-BELL PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
4	CAP. 40	24017	M-40-350	EL-5	PR6450-40	TC78 Filter
5	20	24003	M-20-350	UT-203	PR6450-20	TC65
6	25	24006	M-25-25	TA-25	PR625-25	BR2045 TC65 Cath. Bypass
7	25	24006	M-25-25	TA-25	PR625-25	BR252A TC26
8	.002	23002	S-6-002	TC-22	684-002	TP405 Output Plate Bypass
9	.001	23001	S-6-001	TC-21	684-001	TP404 Tone Compensation
10	.05	23010	S-6-05	TC-15	684-05	TP415 Audio coupling

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PACKARD-BELL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
11A	RESIST-ANCE 500KΩ	25007	MR43	D13-133	AM-50-Z	Volume Control
B	Switch	Not Req.	Not Req.	A	FS-3	Attach to 11A per instructions
12A	3 Meg. Switch	25503	MR57	D13-140	SW-3	Tone Control
B	Shaft	Not Req.	Not Req.	A	AM-57-Z	Attach to 12A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		PACKARD-BELL PART No.	IRC PART No.	
13	220KΩ	73049	BTS-220K	Rad-Red-Y1. AF Grid
14	560Ω	73022	BTS-560	Gm.-Blue-Br. AF Cathode
15	4700Ω	73033	BTS-4700	Y1.-Y1.-Red AF Cathode
16	220KΩ	73049	BTS-220K	Red-Red-Y1. AF Plate Load
17	470KΩ	75051	BTS-470K	Y1.-Y1.-Y1. Output Grid
18	270Ω	73074	BM-1-270	Red-V1.-Br. Output Cathode
19	1500Ω	73201	BTS-1500	Br.-Gm.-Red Feedback
20	680Ω	73121	BT-2-680	Blue-Gray-Br. Filter

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA	
	PRI.	SEC. 1	SEC. 2	PACKARD-BELL PART No.	THORDARSON PART No.
21	117VAC @ .3A	560V CT 6.5V AC @ .051A @ 1.2A		89008	P-6119 T22R01

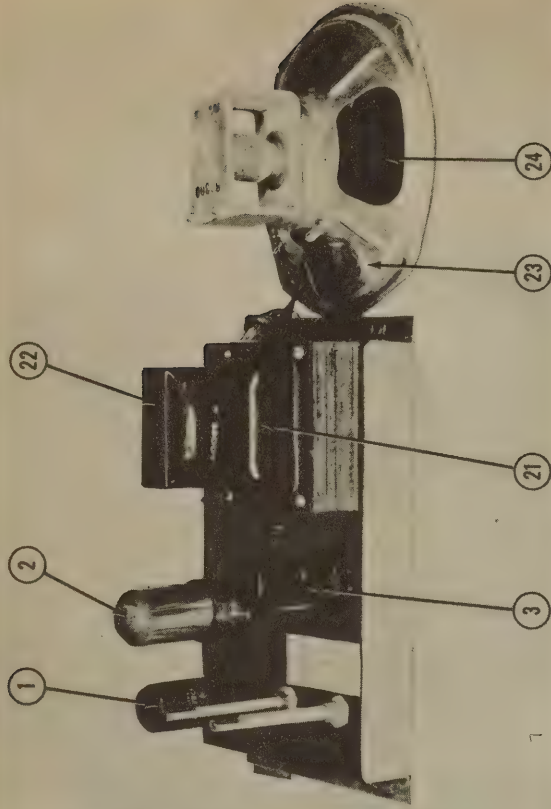
TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		PACKARD-BELL PART No.	THORDARSON PART No.	
22	5500Ω	3.5Ω	800Ω	89405	A-3877* TC2S58	*Drill one new mounting hole.

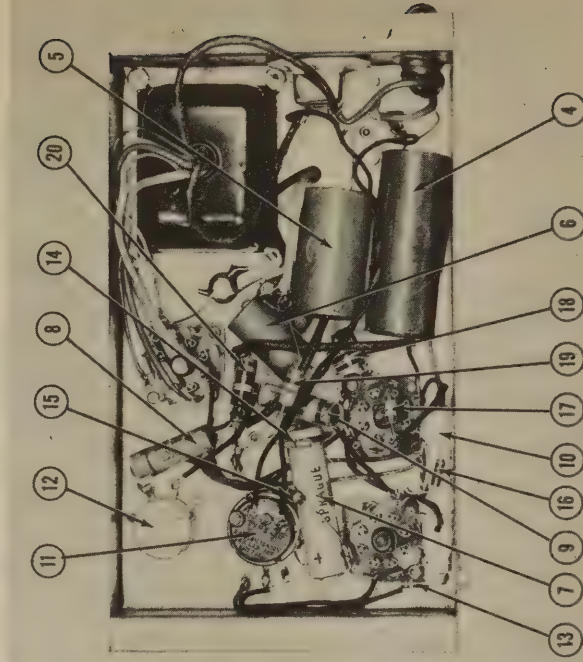
SPEAKER

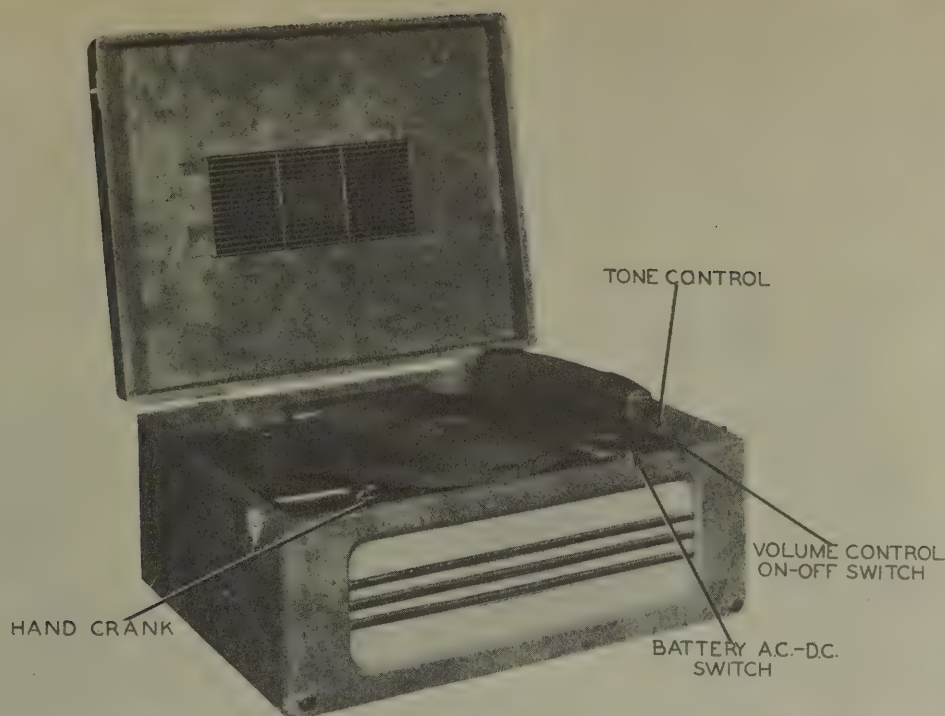
ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	PACKARD-BELL PART No.	JENSEN PART No.	
23	PM	3.5Ω	B3003	ST-111	
24	6" DIA.	3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





PACKARD-BELL MODEL C-1461

TRADE NAME	Packard-Bell, Model C-1461
MANUFACTURER	Packard-Bell Co., 3443 Wilshire Blvd., Los Angeles, Calif.
TYPE SET	Three Power Portable Phonograph with 4-Tube Amplifier & Speaker
TUBES (FOUR)	Types, 1S5 Voltage Amp., 3Q4 Power Amp., 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC or 1.5 Volts "A" Battery and 90 Volt "B" Battery
RATING	.235 Amp. @ 117 Volts AC or 160 MA @ 1.5 Volts DC and 10 MA @ 90 Volts DC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1S5	0V.	0V.	0V.	28V _{DC}	28V _{DC}	0V.	1.1V _{DC}
2	3Q4	0V.	111V _{DC}	0V.	103V _{DC}	71.5V _{DC}	111V _{DC}	0V.
3	50B5	0V.	6.5V _{DC}	33V _{AC}	84V _{AC}	95V _{DC}	103V _{DC}	0V.
4	35W4	0V.	0V.	84V _{AC}	117V _{AC}	117V _{AC}	112V _{AC}	138V _{DC}

† MEASURED ON BATTERY POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1S5	*	INF.	INF.	3 MEG.	3 MEG.	500K _Ω	*
2	3Q4	*	1 MEG.	650K _Ω	1 MEG.	*	1 MEG.	*
3	50B5	650K _Ω	*	172 _Ω	225 _Ω	1 MEG.	1 MEG.	650K _Ω
4	35W4	INF.	INF.	225 _Ω	252 _Ω	252 _Ω	248 _Ω	1 MEG.

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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CHASSIS—TOP VIEW

CAPACITORS

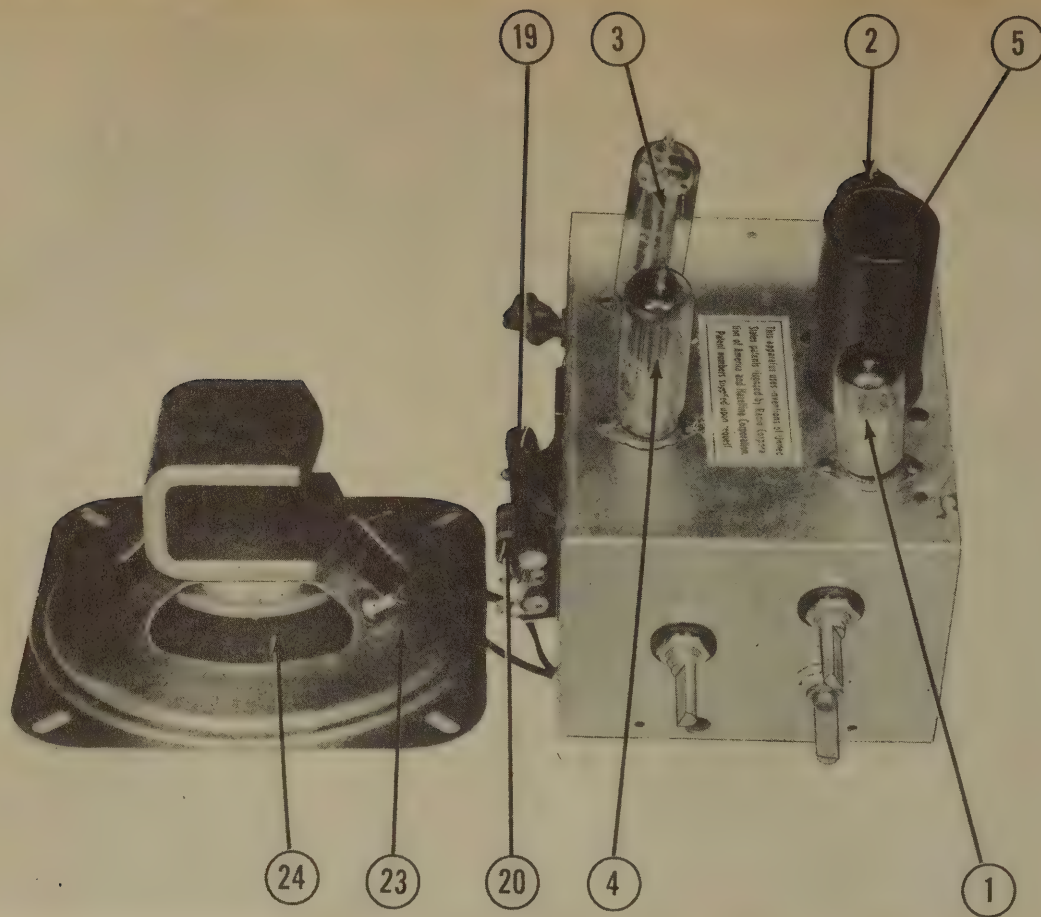
ITEM No.	RATING		PACKARD-BELL PART No.	REPLACEMENT DATA				MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT		SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNEILL DUBILIER PART No.		
5A	40	150	24007A	DY-304	EL-351	AF88D	UP8CJ62	FP304	Filter
B	20	150							
C	100	25							
6	1	400	23011	S-4-1	TC-1	FRS25-100	D74P1	TP428	Cath. Bypass
7	.002	600	23002	S-6-002	TC-22	484-.1	D74P1	TP428	Line Filter
8	.005	600	23004	S-6-005	TC-25	684-.002	D74P1	TP408	Output Plate Bypass
9	.005	400	23009	S-4-005	TC-15	684-.005	D74P1	TP408	Tone Compensation
10	1	200	23011	S-4-1	TC-15	484-.05	D74P1	TP428	Audio Coupling
11	1	400	23011	S-4-1	TC-1	484-.1	D74P1	TP428	Line Isolation
12	470	500	23229	M0.5-35	TC-1	484-.1	D74P1	TP428	Phono Coupling
					1F1-35	14668-0005	5W575	MC245	Tone Compensation

ITEM	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST- ANCE No.	WATTS	PACK.-BELL PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
13A	500K2	1	25004-A	M748	D13-133	M-60-Z	
B	Shaft		Not Req.		A	Not Req.	
C	Switch		25005-A	M28	41	S4-A	
14A	3 Meg.	1	" "			" "	
B	Shaft		Not Req.	M57	D13-140	M-67-Z	
				Not Req.	A	Not Req.	

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PACKARD-B.	IRC PART No.	
15	10 Meg.			BTS-10 Reg.	Br.-Blk.-Blue Audio Voltage Divider
16	330K Ω	1/2		BTS-330K	Or.-Gr.-Yl. AF Plate Load
17	680K Ω	1/2		BTS-680K	Blue-Gray-Yl. Output Grid
18	120 Ω	1/2		BW-4-120	Er.-Red-Gr. Output Cathode
19	200 Ω	1		AB-200	Filament Dropping
20	680 Ω	1/2		BTS-680	Blue-Gray-Br. Filter
21	390 Ω	1/2		BW-2-390	Or.-White-Br. Bias

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PACK-BELL PART No.	STANCOR PART No.	THORDARN PART No.		
	PRI.	SEC.	PRI.	SEC.					
22	10KΩ	3.4Ω	820Ω	.85Ω	89004				
	tapped								
	20KΩ								
	(a) 20KΩ								

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		PACKARD- BENT PART No.	JENSEN PART No.	
23	FIELD VC IMP. PH 3.42	83201	ST-108 Mod. PG-X	
24	CONE DIA. VC DIA. SW 2"			SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER



PARTS LIST AND DESCRIPTIONS (Continued)

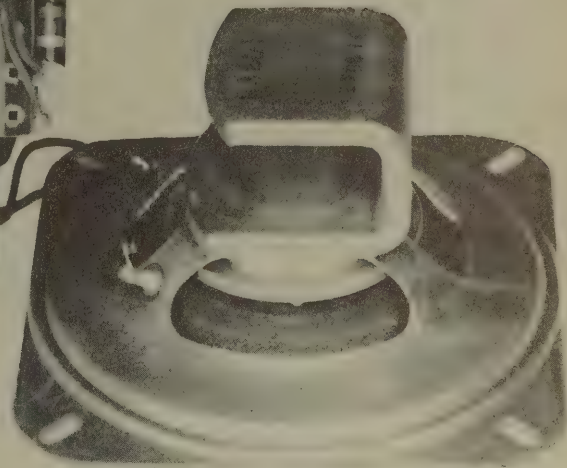
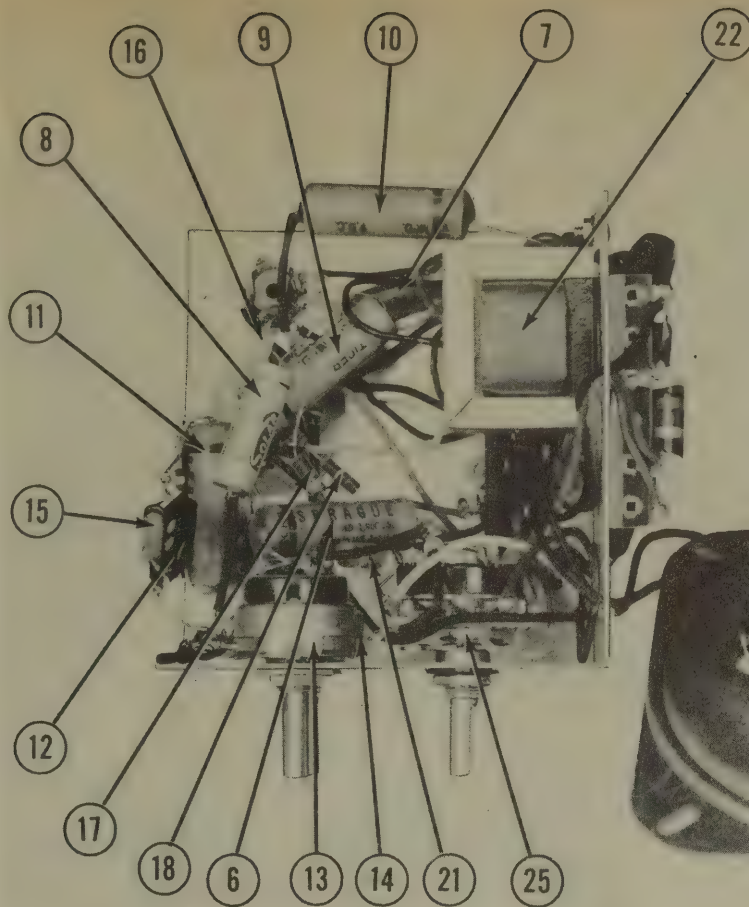
MISCELLANEOUS

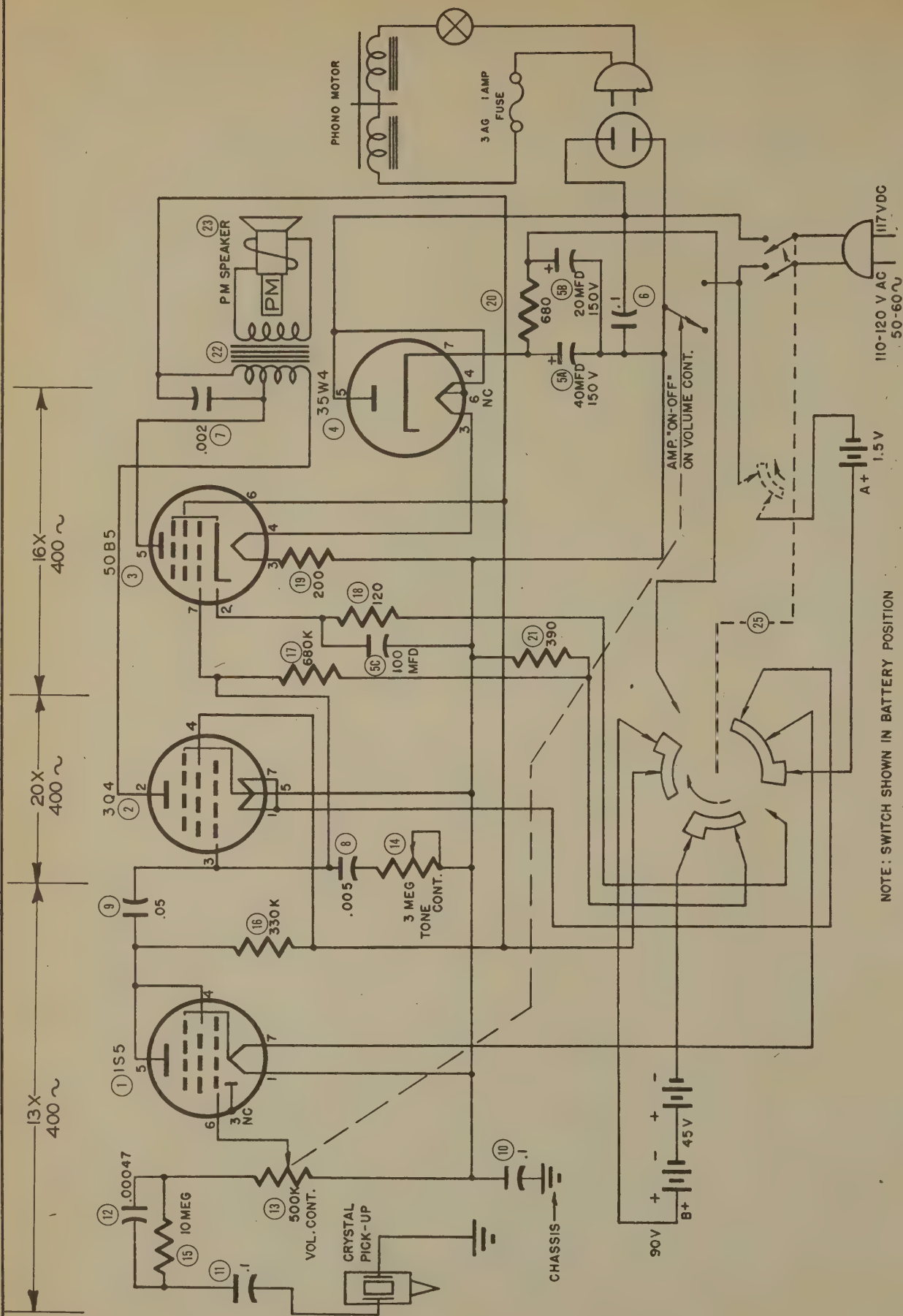
ITEM No.	PART NAME	PACKARD-BELL PART No.	NOTES
25	AC-DC-Batt. Sw. Motor, Electric Motor, Spring Needle, Phono. Pickup, Phono. "A" Battery "B" Battery	860035 58010A 58014C 59003 59006 16001 16002	3PDT & SPDT (Water Type) Permanent Type Arm & Cartridge 1½ Volts 45 Volts (2 Used)

PUSHBUTTON ADJUSTMENTS

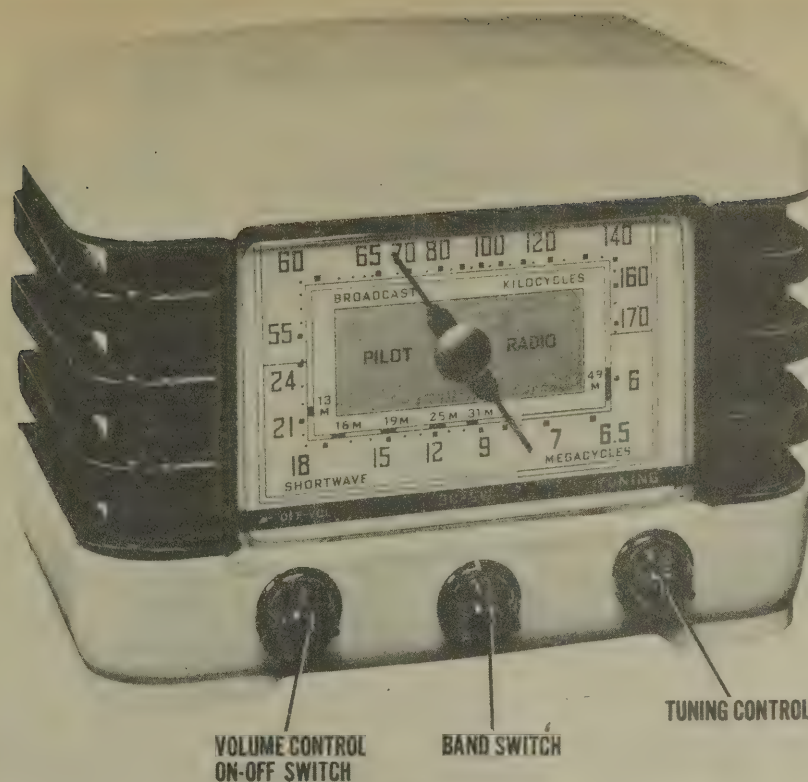
1. Remove the two Phillips head screws holding left hand motorboard panel. Remove panel.
2. Remove the push-on type volume control knob and the tone control knob.
3. Remove the set screw type AC-DC-Battery control knob.
4. Remove the turntable.
5. Remove the seven Phillips head screws holding motorboard to cabinet. Lift motorboard out of cabinet.
6. Disconnect the phono-motor plug from chassis.
7. Disconnect the three lead battery plug from the batteries.
8. Remove three wood screws holding chassis to cabinet.
9. Remove four wood screws and washers holding speaker to cabinet. Remove speaker.
10. Remove bracket holding line cord.
11. Remove chassis from cabinet.
12. Unsolder phono-pickup from terminal strip underneath chassis. Unsolder copper shield from chassis.

CHASSIS—BOTTOM VIEW





THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 472-22



PILOT MODEL T-500U

TRADE NAME Pilot, Model T-500 Series
MANUFACTURER Pilot Radio Corp., 37-06 36th St. Long Island City N.Y.
TYPE SET AC-DC Operated Two Band Superheterodyne Receiver
TUBES (FIVE) Types 12SA7GT Converter, 12SK7GT IF Amp, 12SQ7GT Det.-AVC-AF
50L6GT Power Output, 35Z5GT Rectifier

POWER SUPPLY 105-120 Volts AC-DC
TUNING RANGE—BROADCAST 535-1720KC

RATING .270 Amp. @ 117 Volts AC
SHORT WAVE 5.6-24.0MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer at the last reference mark at the low freq. end of the dial. Use isolation trans. if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of front section of variable. Low side to B-.	455KC	BC	Low freq. end	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If isolation trans. is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
400Ω	High side to ext. ant. lead. Low side to B-.	18.0MC	SW	18.0MC	"	A5	Adjust for maximum output
400Ω	"	18.0MC	"	Tune for maximum output.	"	A6	Rock variable and adjust for maximum output.
200MMF.	"	1500KC	BC	1500KC	"	A7	Adjust for maximum output
200MMF.	"	600KC	"	Tune for maximum output.	"	A8	Rock variable and adjust for maximum output. Re-check A7 at 1500KC.

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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PILOT PART No.	STANDARD REPLACEMENT		
1	Converter	128A7GT	128A7GT	8AD	
2	IF Amp.	128K7GT	128K7GT	8N	
3	Det.-AVC-AF	128Q7GT	128Q7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PILOT PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.
6A	30 CAP.	24-61	DY-303	EL-324	AF94DA	FP313
6B	150					
6C	20					
7	.05	22-31	S-6-05	TC-15	684-05	DT855
8	.01	22-17	S-4-01	TC-11	484-01	DT451
9	.01	22-17	S-4-01	TC-11	484-01	DT451
10	.01	400	S-4-01	TC-11	484-01	DT451
11	.05	22-16	S-4-05	TC-15	484-05	DT455
12	.2	22-100	S-4-2	TC-2	484-2	DT429
13	.1	400	S-4-1	TC-1	484-1	DT421
14	.01	400	S-4-01	TC-11	484-01	DT421
15	100	20-14	MO.5-31	LFM-31	1468-0001	MC235
16	35	500	MO.5-43	MS-43		MC245
17	500	20-30	MO.5-35	LFM-35	1468-0005	MC235
18	100	500	MO.5-31	LFM-31	1468-0001	MC215
19	500	20-2	MO.5-41	LFM-41	1468-0001	
20	520	500				

*Not used in all models.

CONTROLS

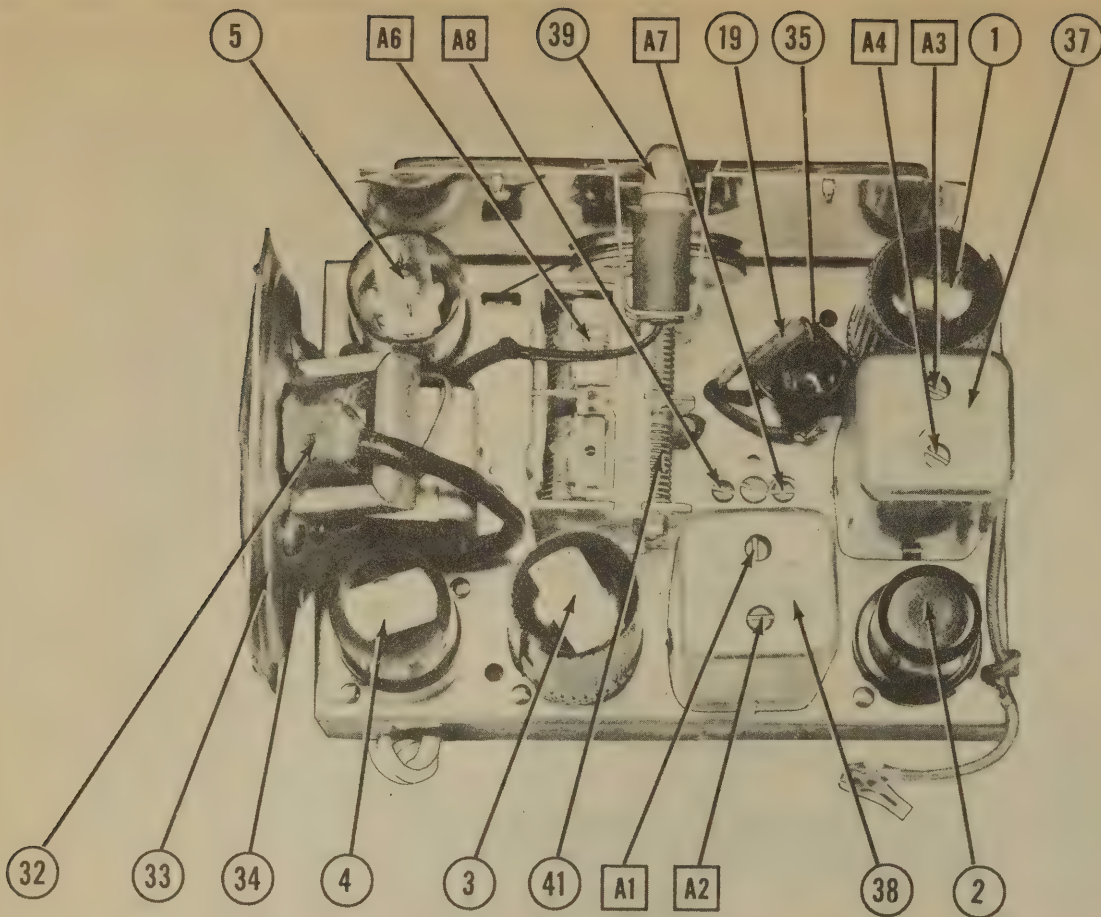
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PILOT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
21A	500KΩ	36-24	ME48	D13-133	M-50-2	Volume Control
21B	Shunt	Not Req.	Not Req.	A	Not Req.	Attach to 21A per instructions.
21C	Switch		M26	41	SW-A	"

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		PILOT PART No.	MALLORY PART No.	IRC PART No.		
22	20Ω	30-8	BW-2-22	BW-2-22		Red-Blk.-Blk. Parasitic Suppressor
23	22KΩ	30-266	BTS-22K	BTS-22K		Red-Red-Or. Oscillator Grid
24	220KΩ	30-271	BTS-220K	BTS-220K		Red-Red-Yl. Line Isolation
25	2.2 Meg.	30-278	BTS-2.2 Meg.	BTS-2.2 Meg.		Red-Red-Grn. AVC Network
26	2.2 Meg.	30-278	BTS-2.2 Meg.	BTS-2.2 Meg.		Red-Red-Grn. " Load
27	3.9 Meg.	30-375	BTS-3.9 Meg.	BTS-3.9 Meg.		Or.-Or.-Yl. " Plate Load
28	330KΩ	30-295	BTS-330K	BTS-330K		Yl.-Yl.-Yl. Output Grid
29	470KΩ	30-274	BW-470K	BW-470K		Br.-Red-Br. " Cathode
30	120Ω	30-394	BW-120	BW-120		Br.-Grn.-Br. Pilot Light Shunt
31	150Ω	30-363	BW-150	BW-150		

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		PILOT PART No.	STANCOR PART No.	THORDAR'N PART No.	
32	1700Ω 2.9Ω 165Ω	.5Ω	A-3876+	T22S45+	+ Drill one new mounting hole



PARTS LIST AND DESCRIPTIONS (Continued) SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		PILOT PART No.	JENSEN PART No.	
33	FIELD RES. VC IMP. 450Ω 2.9Ω CONE DIA. VC DIA. 4" 1 1/2"	40-19	ST-637 Mod. H4-S	
34		NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT.		

R F COILS

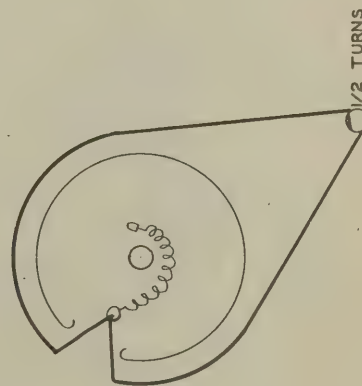
ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		PILOT PART No.	MEISSNER PART No.	
35A	BC Ant. Coil	70-51		35A & 35B wound on same form
35B	SW Ant. Coil	72-44		36A & 36B wound on same form.
36A	BC Osc. Coil	273-91	16-6658	
36B	SW Osc. Coil	273-93	16-6660	
37	Input IF			
38	Output IF			

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	PILOT PART No.	
39	Bayonet	6-8	0.15	Brown	68-6	Type 47

MISCELLANEOUS

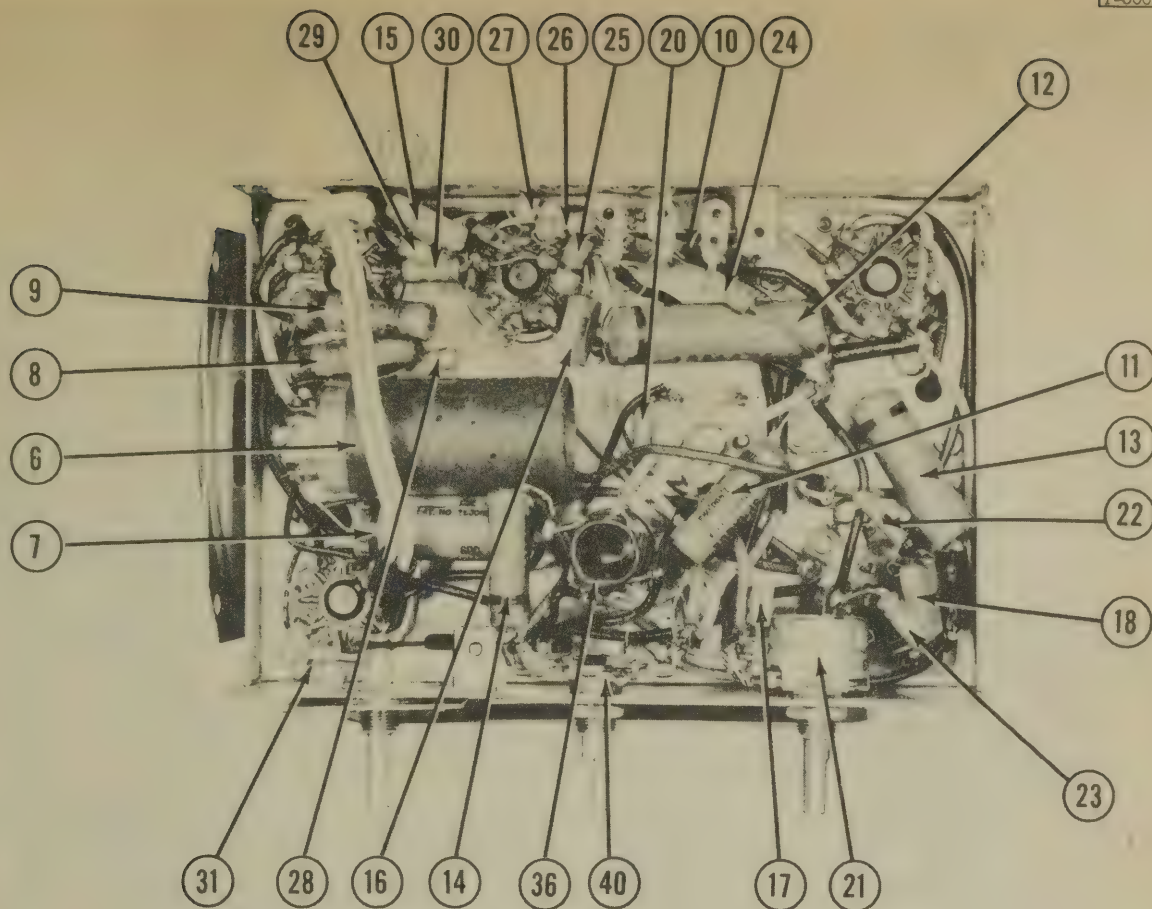
ITEM No.	PART NAME	PILOT PART No.	NOTES
40	Bandswitch	100-49	
41	2-Gang Var. Cap	26-28	(14-548 MMF, 14-548 MMF)
47	Dual Trimmer	27-18	{BC Osc. Adjustment
48			{BC Osc. Padder



1/2 TURNS

DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Pin	3525GT
No	Volt
1	0V
2	117 V _{AC}
3	113 V _{AC}
4	0V
5	113 V _{AC}
6	0V
7	87 V _{AC}
8	122 V _{DC}

PILOT MODEL T-531AB

TRADE NAME Pilot, Model T-530 Series
MANUFACTURER Pilot Radio Corp., 37-06 36th St., Long Island City, N.Y.
TYPE SET AC-DC Operated Multiband Superheterodyne Receiver
TUBES (EIGHT) Types, 6SB7Y Converter, 6SG7 IF Amp., 6SG7 2nd IF Amp., 6SJ7 Limiter, 6H6 Discriminator, 6SJ7 1st AF Amp., 25L6GT Power Output, 25Z6GT Rectifier.
POWER SUPPLY 100-125 Volts AC-DC or 220 Volts AC-DC (with ballast)
RATING .520 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST 535-1720KC
SHORT WAVE 5.6-18.5MC, 9.353-9.795 MC, 11.241-12.419 MC
FM 87.5-108.5 MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn variable fully closed and set pointer at the last reference mark at the left end of the dial. Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output of signal generator no higher than is necessary to obtain output reading. For FM alignment use a 0-200 DC microammeter in series with a 100,000 ohms resistor or a 0-20 volt DC vacuum tube voltmeter and for discriminator alignment use a 50-0-50 microammeter in series with a 100,000 ohm resistor as an output indicator. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #8 of 6SB7. Low side to B-.	455KC	BC	Low freq. end.	Across voice coil	A1,A2,A3	Adjust for maximum output. If isolation trans. is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
.1 MFD.	"	10.7MC	FM	"	Microammeter between AVC line and B-.	A4,A5,A6,A7,A8,A9.	Short limiter screen grid (pin #6) to B-. Adjust for maximum reading then remove short.
.1 MFD.	"	"	"	"	Microammeter to junction of the two 330K resistors on disc. trans. and B-.	A10	Adjust for maximum reading.
.1 MFD.	"	"	"	"	Zero center scale microammeter to pin #6 of 6H6 and B-.	A11	Adjust for zero reading. Swing signal generator to 10.6 and 10.8 MC and record both readings. If these readings are not equal repeat last two steps and check again. It may be necessary to re-adjust A10 slightly to get these readings equal.
	No connection. (Signal generator off)		International SW	Tune near 10.7MC for maximum meter reading.	Microammeter to AVC line and B-.	A12	Adjust for minimum reading
200 MMF	High side to ant. post A. Low side to chassis.	1500KC	BC	150	Across voice coil	A13,A14	Adjust for maximum output in order given.
200 MMF	"	600KC	"	Tune for maximum output.	"	A15	Rock variable and adjust for maximum output. Repeat last two steps until no further improvement can be made.
400 ohms	"	18.0MC	International SW	18MC	"	A16,A17	Adjust for maximum output in order given.
400 ohms	"	9.5MC	31 Meter Band	9.5MC	"	A18,A19	"
400 ohms	"	12.0MC	25 Meter Band	12MC	"	A20,A21	"
300 ohms	"	98MC	FM	98MC	"	A22,A23	"
200 MMF	"	455KC	BC	Low freq. end	"	A24	Adjust for minimum output

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PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

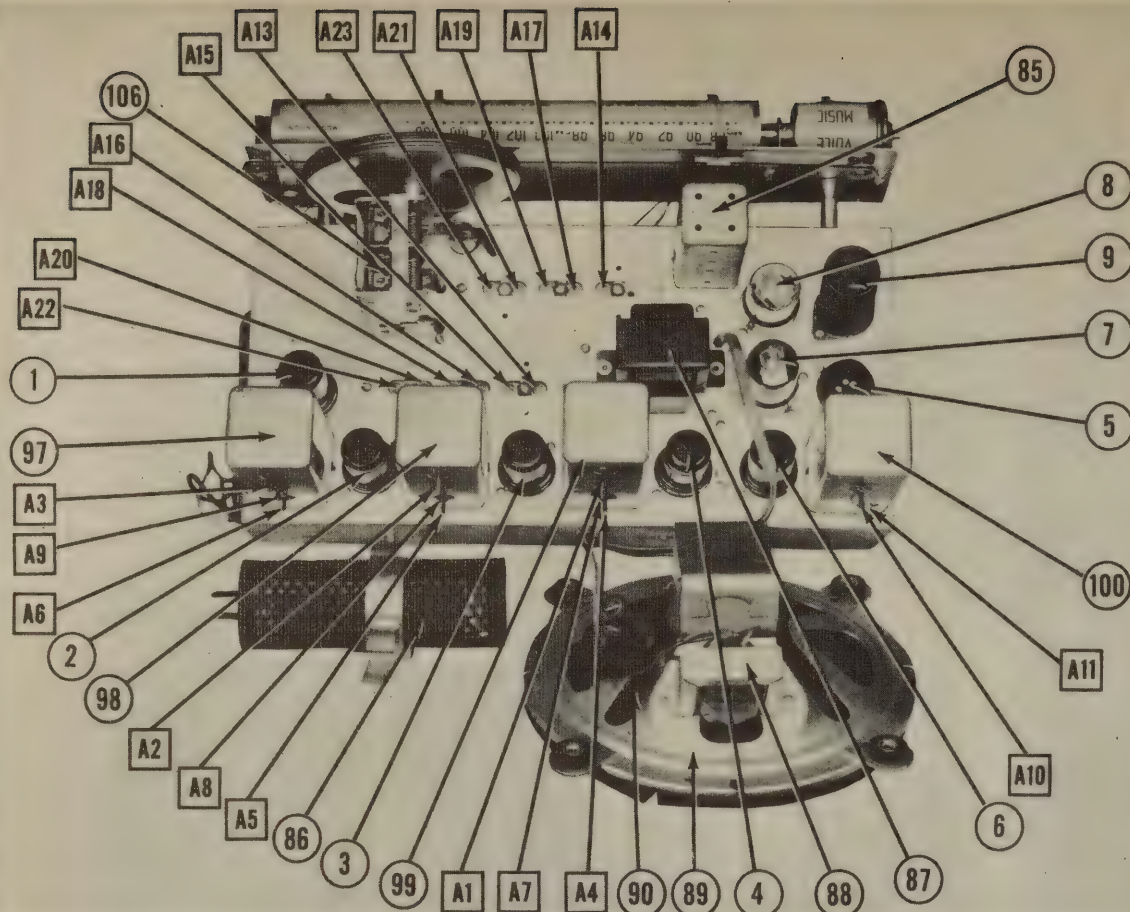
TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PILOT PART No.	STANDARD REPLACEMENT		
1	Converter	6SB7Y	6SB7Y	8R	
2	IF Amp.	6SG7	6SG7	8BK	
3	2nd IF Amp.	6SG7	6SG7	8BK	
4	Limiter	6SJ7	6SJ7	8N	
5	Discriminator	6H6	6H6	7Q	
6	1st AF	6SJ7	6SJ7	7AC	
7	Per. Output	25L6GT	25L6GT	7Q	
8	Rectifier	25Z6GT	25Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					CORNEILL DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
		PILOT PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	REPLACEMENT DATA			
9A	50	24-37	M-40-150	EL-51	AF10100T	BR5015	BR5015	TC28	▲ Filter
10	120	24-37	24-37	EL-51	AF10100T	BR5015	BR5015	TC28	Output Cath. Bypass
11	25	24-37	24-37	EL-51	AF10100T	BR5015	BR5015	TC28	Audio Cath. Bypass
12	25	24-37	24-37	EL-51	AF10100T	BR5015	BR5015	TC28	Line Bypass
13	25	24-37	24-37	EL-51	AF10100T	BR5015	BR5015	TC28	Filament Bypass
14	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Output Plate Bypass
15	0.005	600	22-11	TC-11	484-01	D74S1	D74S1	TP421	Audio Coupling
16	0.1	600	22-18	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
17	0.05	200	22-28	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
18	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
19	0.1	400	22-50	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
20	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
21	0.003	400	22-62	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
22	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
23	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
24	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
25	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
26	0.05	400	22-30	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
27	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
28	0.05	400	22-30	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
29	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
30	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
31	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
32	0.05	400	22-30	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
33	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
34	0.05	400	22-30	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
35	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
36	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
37	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
38	0.1	400	22-17	TC-11	484-01	D74S1	D74S1	TP421	Line Isolation
39	5000	500	20-115	FW-25	1467-005	1D5D5	1D5D5	MC465	AVC Filter
40	100	500	20-14	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
41	100	500	20-14	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
42	100	500	20-14	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
43	100	500	20-14	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
44	100	500	20-14	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
45	100	500	20-14	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
46	100	500	20-14	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
47	400	500	20-121	FW-34	1468-004	SW571	SW571	MC235	Filament Bypass
48	100	500	20-14	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
49	150	500	20-120	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
50	5000	500	20-115	FW-25	1467-005	1D5D5	1D5D5	MC465	AVC Filter
51	3600	500	21-35	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
52	250	500	20-22	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
53	100	500	20-14	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
54	360	500	20-137	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
55	10	500	21-36	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
56	36	500	20-9	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
57	500	500	20-30	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass
58	100	500	20-14	FW-31	1468-001	SW571	SW571	MC235	Filament Bypass



PARTS LIST AND DESCRIPTIONS (Continued) CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP. VOLT	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES	
		PILOT PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNEILL DUBILIER PART No.	MALLORY PART No.
107	100 500	20-14	10-5-31	1FM-31	1468-0001	505T1	MC235
108	500 500	20-30	10-8-35	1FM-35	1468-0005	505T5	MC245

† Replacement must have shield.

‡ Parallel sections to obtain desired capacity.

§ Not used in all models.

CHASSIS—BOTTOM VIEW



VOLTAGE READINGS

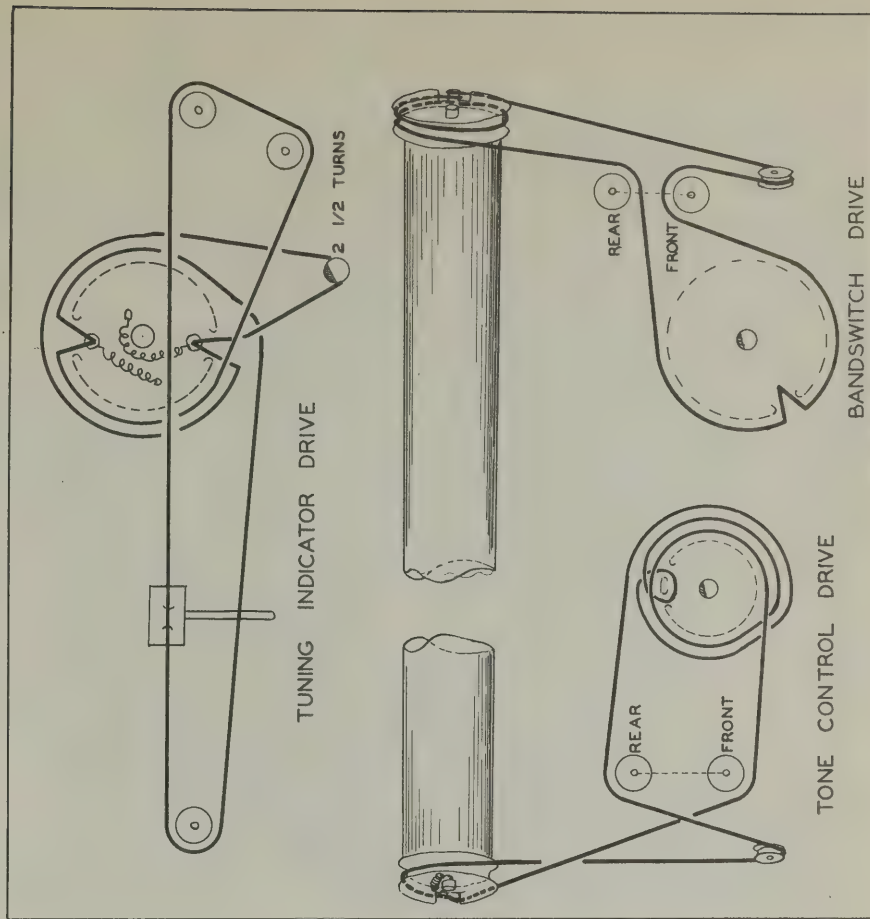
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SB7Y	0V	25V AC	12V DC	105V DC	35V DC	0V	19V AC	2V DC
2	6SG7	0V	31V AC	1V DC	1V DC	103V DC	25V AC	103V DC	103V DC
3	6SG7	0V	36V AC	1V DC	1V DC	103V DC	31V AC	103V DC	103V DC
4	6SJ7	0V	12V AC	0V	-6V DC	0V	0V	19V DC	12V DC
5	6H6	0V	6V AC	-6V DC	0V	-6V DC	0V	0V	0V
6	6SJ7	0V	12V AC	0V	0V	12V DC	18V DC	6V AC	32V DC
7	25L6GT	0V	52V AC	113V DC	123V DC	0V	0V	36V AC	84V DC
8	25Z6GT	0V	77V AC	117V DC	132V DC	117V DC	0V	52V AC	132V DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SB7Y	67K Ω	18 Ω	45K Ω	45K Ω	93K Ω	1 Ω	12 Ω	2 MEG Ω
2	6SG7	67K Ω	18 Ω	140 Ω	1.8 MEG Ω	140 Ω	45K Ω	18 Ω	45K Ω
3	6SG7	67K Ω	21 Ω	140 Ω	1.8 MEG Ω	140 Ω	45K Ω	18 Ω	45K Ω
4	6SJ7	67K Ω	8 Ω	0 Ω	560K Ω	0 Ω	0 Ω	12 Ω	92K Ω
5	6H6	67K Ω	4 Ω	160K Ω	40K Ω	160K Ω	0 Ω	0 Ω	0 Ω
6	6SJ7	67K Ω	8 Ω	0 Ω	4 MEG Ω	22K Ω	1 MEG Ω	4 Ω	265K Ω
7	25L6GT	67K Ω	34 Ω	45K Ω	45K Ω	480K Ω	10 Ω	21 Ω	140 Ω
8	25Z6GT	INF.	44 Ω	78 Ω	45K Ω	78 Ω	0 Ω	34 Ω	45K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- 1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.



PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

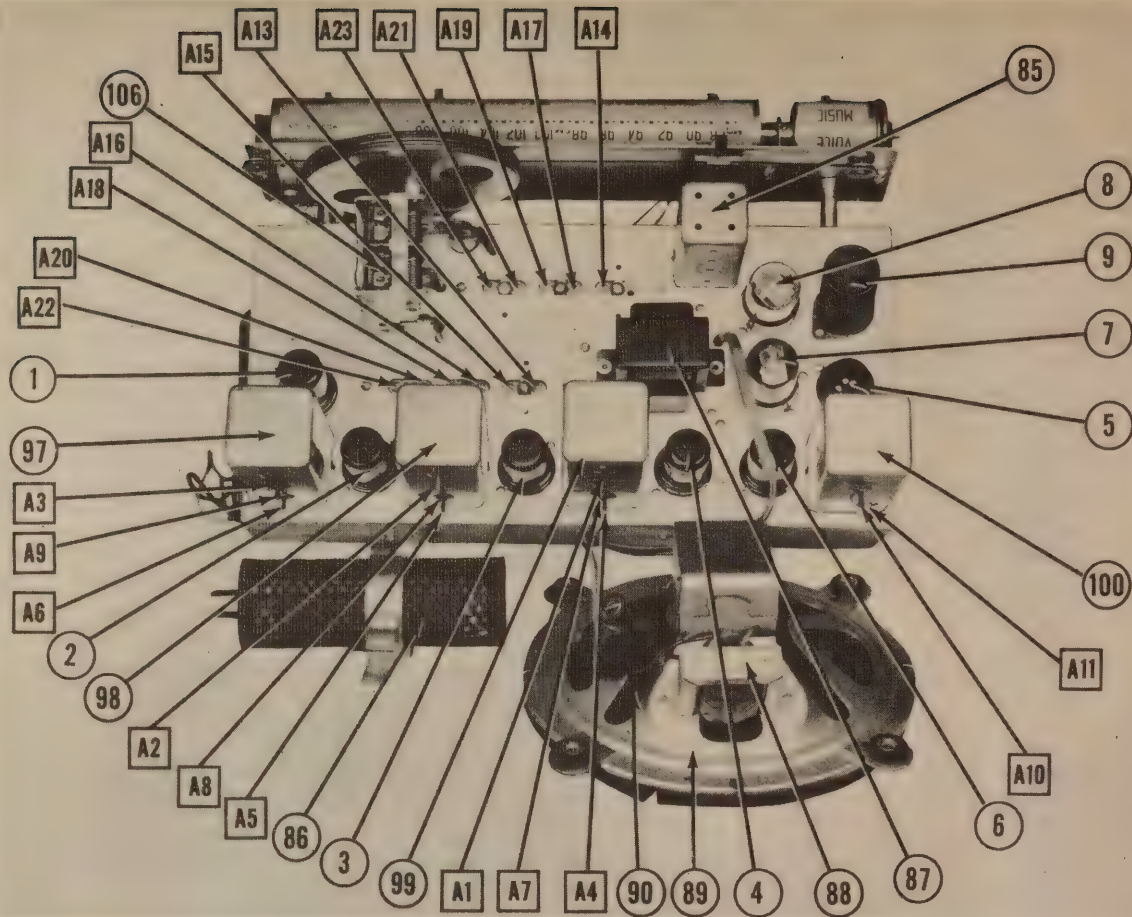
TUBES

ITEM No.	USE	REPLACEMENT DATA		BMA BASE TYPE	INSTALLATION NOTES
		PILOT PART No.	STANDARD REPLACEMENT		
1	Converter	6SB7Y	6SB7Y	8R	
2	1st IF Amp.	6SG7	6SG7	8BK	
3	2nd IF Amp.	6SG7	6SG7	8BK	
4	Limiter	6SB7	6SB7	8N	
5	Discriminator	6H6	6H6	7Q	
6	1st AF	6SV7	6SV7	8N	
7	Pwr. Output	25L6GT	25L6GT	7AC	
8	Rectifier	25Z6GT	25Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	PILOT PART No.	REPLACEMENT DATA			CORNEILL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
			SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.			
9A	50 CAP.	24-37	M-40-150	EL-51	AF101001T	BR5015		▲ Filter
10	120	24-54	DY-8040-150	EL-123	PRS150-501	BR6C1441	TC26	Output Cath. Bypass
11	25	24-54	M-25-25	TA-25	PRS25-25	BR252A	TC28	Audio Cath. Bypass
12	25	24-54	M-25-25	TA-25	PRS25-25	BR252A	TP418	Line Bypass
13	1	22-37	S-6-1	TC-1	684-1	D76P1	TP421	Filament Bypass
14	0.1	22-17	S-4-01	TC-11	484-01	D74S1	TP421	"
15	0.05	22-11	S-6-005	TC-25	684-005	D76D5	TP408	Output Plate Bypass
16	0.1	22-18	S-6-01	TC-11	484-01	D76S1	TP410	Audio Coupling
17	0.05	22-18	S-4-05	TC-15	484-05	D76S5	TP426	Audio Screen Bypass
18	0.1	22-17	S-6-01	TC-11	484-01	D76S1	TP421	Line Isolation
19	0.1	22-17	S-6-01	TC-11	484-01	D76S1	TP410	Audio Coupling #
20	0.1	22-17	S-6-01	TC-11	484-01	D76S1	TP421	Line Isolation
21	0.003	22-62	S-6-003	TC-23	684-003	D76D3	TP406	Tone Compensation
22	0.1	22-17	S-4-01	TC-11	484-01	D74S1	TP421	Audio Coupling
23	0.1	22-17	S-4-01	TC-11	484-01	D74S1	TP421	Lim. Plate Decoupling
24	0.1	22-17	S-4-01	TC-11	484-01	D74S1	TP421	Lim. Screen Bypass
25	0.1	22-17	S-4-01	TC-11	484-01	D74S1	TP421	2nd IF Screen Bypass
26	0.5	22-30	S-4-05	TC-15	484-05	D74S5	TP426	2nd IF Cath. Bypass
27	0.1	22-17	S-4-01	TC-11	484-01	D74S1	TP421	AVC Filter
28	0.5	22-30	S-4-05	TC-15	484-05	D74S5	TP426	RF Bypass Pwr. Supp.
29	0.1	22-17	S-4-01	TC-11	484-01	D74S1	TP421	1st IF Screen Bypass
30	0.1	22-17	S-4-01	TC-11	484-01	D74S1	TP421	1st IF Cath. Bypass
31	0.1	22-17	S-4-01	TC-11	484-01	D74S1	TP421	Line Isolation
32	0.5	22-50	S-4-05	TC-15	484-05	D74S5	TP426	Conv. Cath. Bypass SW
33	0.1	22-17	S-4-01	TC-11	484-01	D74S1	TP421	Conv. Plate Decoupling
34	0.5	22-30	S-4-05	TC-15	484-05	D74S5	TP426	Conv. Screen Bypass
35	0.1	22-17	S-4-01	TC-11	484-01	D74S1	TP421	Line Isolation
36	0.1	22-17	S-4-01	TC-11	484-01	D74S1	TP421	AVC Filter
37	0.1	22-17	S-4-01	TC-11	484-01	D74S1	TP421	Filament Bypass
38	0.1	22-17	S-4-01	TC-11	484-01	D74S1	TP421	"
39	5000	20-115	FW-5-25	FW-5-25	1467-005	115D5	MC465	Tone Compensation
40	100	20-14	M0.5-31	1FM-31	1468-001	5W571	MC235	"
41	100	20-14	M0.5-31	1FM-31	1468-001	5W571	MC235	"
42	100	20-14	M0.5-31	1FM-31	1468-001	5W571	MC235	"
43	100	20-14	M0.5-31	1FM-31	1468-001	5W571	MC235	"
44	100	20-14	M0.5-31	1FM-31	1468-001	5W571	MC235	"
45	100	20-14	M0.5-31	1FM-31	1468-001	5W571	MC235	"
46	100	20-14	M0.5-31	1FM-31	1468-001	5W571	MC235	"
47	400	20-121	M0.5-34	1FM-34	1468-004	5W574	MC243	IF Bypass Disc.
48	100	20-14	M0.5-31	1FM-31	1468-001	5W571	MC235	2nd IF Screen Bypass
49	150	20-120	M0.5-31.5	1FM-31.5	1468-001.5	5W571.5	MC236	1st IF Screen Bypass
50	5000	20-115	FW-5-25	FW-5-25	1467-005	5W575	MC465	Line Isolation
51	3600	21-35	M0.5-325	1FM-325	1468-00025	5W5725	MC240	Fixed Padder SW
52	250	20-22	M0.5-31	1FM-31	1468-001	5W571	MC235	Conv. Screen Bypass
53	100	20-14	M0.5-31	1FM-31	1468-001	5W571	MC235	Osc. Grid Capacitor
54	350	20-137	M0S-41	MS-41	1469-00001	5R501	MC215	Fixed Padder BC
55	10	21-36	M0.5-35	1FM-35	1468-0005	5W575	MC245	Ant. Coupling
56	35	20-9	M0.5-35	1FM-35	1468-0005	5W575	MC245	Fixed Trimmer BC
57	500	20-30	M0.5-31	1FM-31	1468-001	5W571	MC235	FM Ant.
58	100	20-14	M0.5-31	1FM-31	1468-001	5W571	MC235	RF coupling



PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLTS	PILOT PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNEILL-DUBILIER PART No.	MALLORY PART No.	
107	100	500	20-14	MO.5-31	1FM-31	1468-0001	5L5T1	MC235	Tone Compensation
108	500	500	20-30	MO.5-35	1FM-35	1468-0005	5W5T5	MC245	Line Isolation †

‡ Replacement must have shield.

† Parallel sections to obtain desired capacity.

‡ Not used in all models.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	PILOT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
59A	1 Meg.	1	35-21	TB238	D13-137X		Volume Control
B	Shaft		Not Req.	SS1	A & C5		Attach to 59A per instructions
C	Switch			M26	41		
60	500K2	1	37-12				Tone Control

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PILOT PART No.	IRC PART No.	
61	150Ω	‡	31-81	BW-‡-150	Br.-Grn.-Br. Parasitic Suppressor
62	220K2	‡	30-271	BTS-220K	Red-Red-Yl. AVC Network
63	220K2	‡	30-271	BTS-220K	Red-Red-Yl. Converter Grid
64	68K2	‡	30-268	BTS-68K	Blue-Gray-Or. Line Isolation
65	10K2	‡	30-248	BTS-10K	Br.-Blk.-Or. Oscillator Grid
66	1000Ω	‡	30-264	BTS-1000	Br.-Blk.-Red Converter Screen Dropping
67	1000Ω	‡	30-264	BTS-1000	Br.-Blk.-Red Converter Plate Dropping
68	150Ω	‡	31-81	BW-‡-150	Br.-Grn.-Br. 1st IF Cathode
69	150Ω	‡	31-81	BW-‡-150	Br.-Grn.-Br. 2nd IF Cathode
70	1 Meg.	‡	30-277	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
71	470K2	‡	30-274	BTS-470K	Yl.-Vl.-Yl. Diode Load
72	15K2	‡	30-284	BTS-15K	Br.-Grn.-Or. Bleeder
73	47K2	‡	30-267	BTS-47K	Yl.-Vl.-Or. Limiter Screen Dropping
74	47K2	‡	30-267	BTS-47K	Yl.-Vl.-Or. Limiter Plate Dropping
75	330K2	‡	30-296	BTS-330K	Or.-Or.-Yl. Discriminator Diode Load
76	330K2	‡	30-296	BTS-330K	Or.-Or.-Yl. " " " "
77	47K2	‡	30-287	BTS-47K	Yl.-Vl.-Or. Discriminator RF Filter
78	22K2	‡	30-266	BTS-22K	Red-Red-Or. Tone Compensation
79	47K2	‡	30-287	BTS-47K	Yl.-Vl.-Or. " " " "
80	3.9 Meg.	‡	30-375	BTS-3.9 Meg.	Or.-White-Grn. 1st AF Grid
81	2200Ω	‡	30-380	BTS-2200	Red-Red-Red 1st AF Cathode
82	1 Meg.	‡	30-277	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Screen Dropping
83	220K2	‡	30-271	BTS-220K	Red-Red-Yl. 1st AF Plate Load
84	150Ω	‡	31-81	BW-‡-150	Br.-Grn.-Br. Output Cathode
85	100Ω	‡	31-77	DG-100	Line Dropping
86	130-130Ω	50-50			" " -See Note 1

Note 1 - Used for 220 volts operation.

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000-)	PILOT PART NO.	STANCOR PART NO.	
87	.085A	110Ω	4.5 Henries	67-9	C-23033	\$Drill one new mounting hole

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	PILOT PART No.	STANCOR PART No.	THORDARSON PART No.	
88	2900Ω	3.8Ω	190Ω .62	Part of 41-16	A-3876	T22545

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	PILOT PART No.	JENSEN PART No.	
89	PM	3.8Ω	41-16	ST-115* Mod. PB-V	*New mounting brackets must be added.
90	CONE DIA. 7/8"	VC DIA. 3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	PILOT PART No.	MEISSNER PART No.	
91	EC Ant. Coil	302	3.92	70-47		
92	SW Ant. Coil	1.52	.12	70-48		
93	EC Osc. Coil	.12	2.52	72-39		
94	SW Osc. Coil		.12	72-40		
95	Osc. Cath.*		1.82	75-11		
96	IF Trap		302	79-59		
97	Input IF	.52	.52	273-73		
98	Inter IF		.22	273-74		
99	Output IF	.22	.52	273-75		
100	Discriminator	.52	.52	30-295		

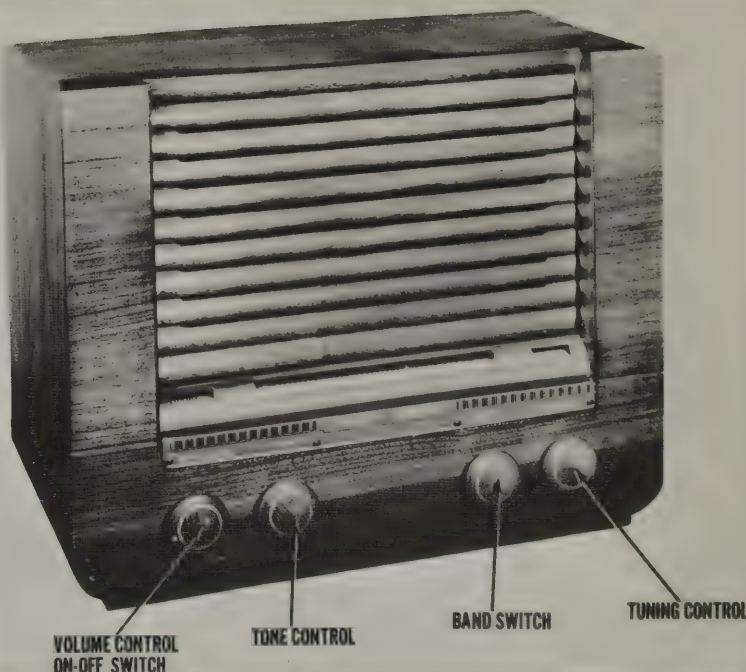
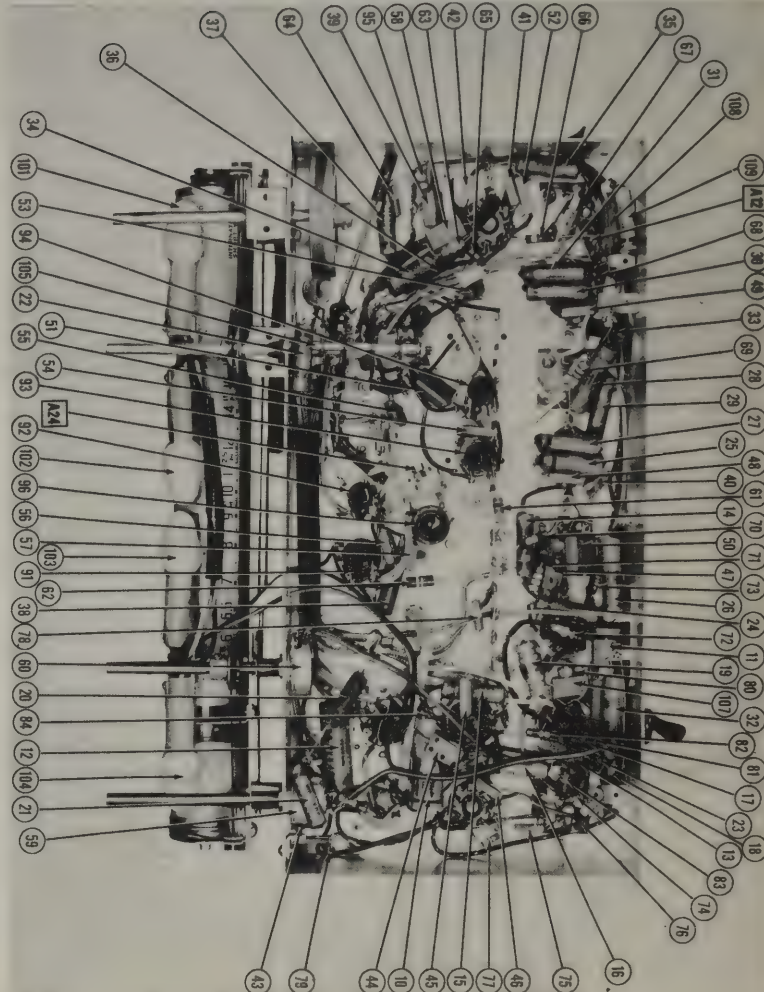
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PILOT PART No.		
101	Screw	110	.05				Type C-7 Frosted Glass
102	"	110	.05				" " " "
103	"	110	.05				" " " "
104	"	110	.05				" " " "

MISCELLANEOUS

ITEM No.	PART NAME	PILOT PART No.	NOTES
105	Bandswitch		
106	4-Gang Var. Cap		10-405 MMF, 10-405 MMF, 8-28 MMF, 8-28 MMF.)

CHASSIS—BOTTOM VIEW



VOLTAGE READINGS

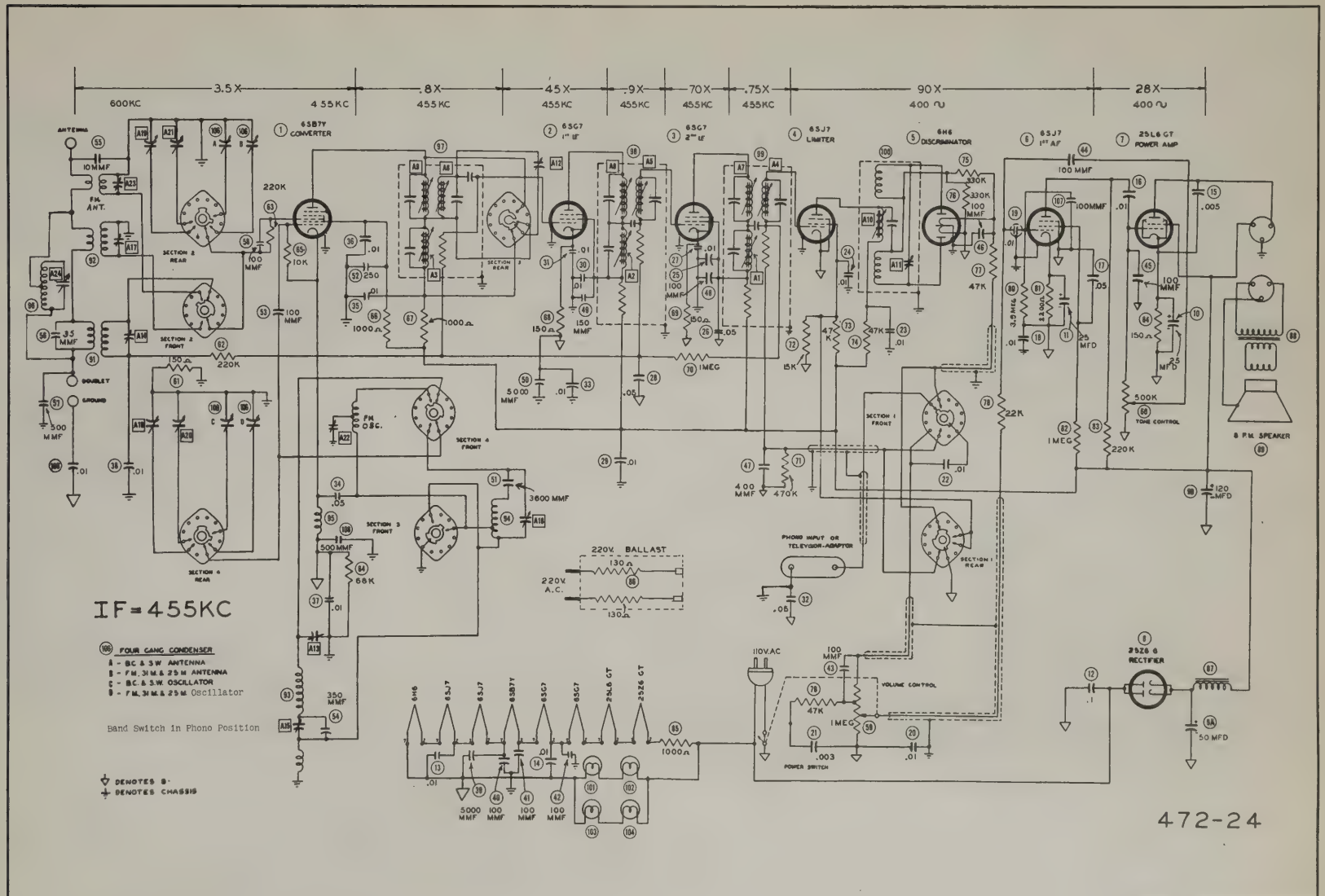
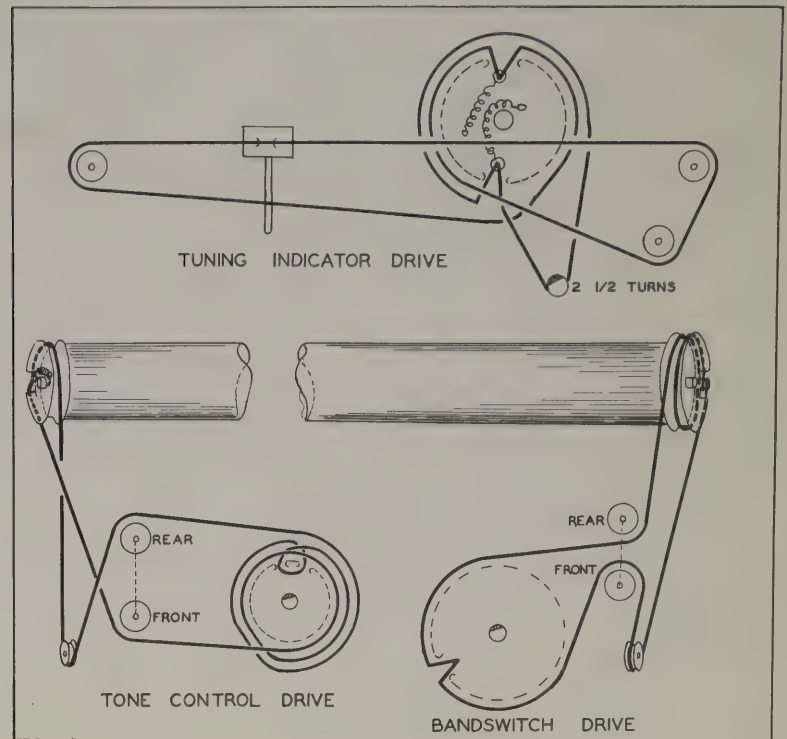
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SB7Y	0V.	25 V _{AC}	122 V _{DC}	105 V _{DC}	-3.5 V _{DC}	0V.	19 V _{AC}	2 V _{DC}
2	6SG7	0V.	31 V _{AC}	1 V _{DC}	-1 V _{DC}	1 V _{DC}	103 V _{DC}	25 V _{AC}	103 V _{DC}
3	6SG7	0V.	36 V _{AC}	1 V _{DC}	-1 V _{DC}	1 V _{DC}	103 V _{DC}	31 V _{AC}	103 V _{DC}
4	6SJ7	0V.	12 V _{AC}	0V.	-6 V _{DC}	0V.	0V.	19 V _{DC}	122 V _{DC}
5	6H6	0V.	6 V _{AC}	-8 V _{DC}	0V.	-6 V _{DC}	0V.	0V.	0V.
6	6SJ7	0V.	12 V _{AC}	0V.	0V.	12 V _{DC}	18 V _{DC}	6 V _{AC}	32 V _{DC}
7	25L6GT	0V.	52 V _{AC}	113 V _{DC}	123 V _{DC}	0V.	0V.	36 V _{AC}	84 V _{DC}
8	25Z8GT	0V.	77 V _{AC}	117 V _{DC}	132 V _{DC}	117 V _{DC}	0V.	52 V _{AC}	132 V _{DC}

RESISTANCE READINGS

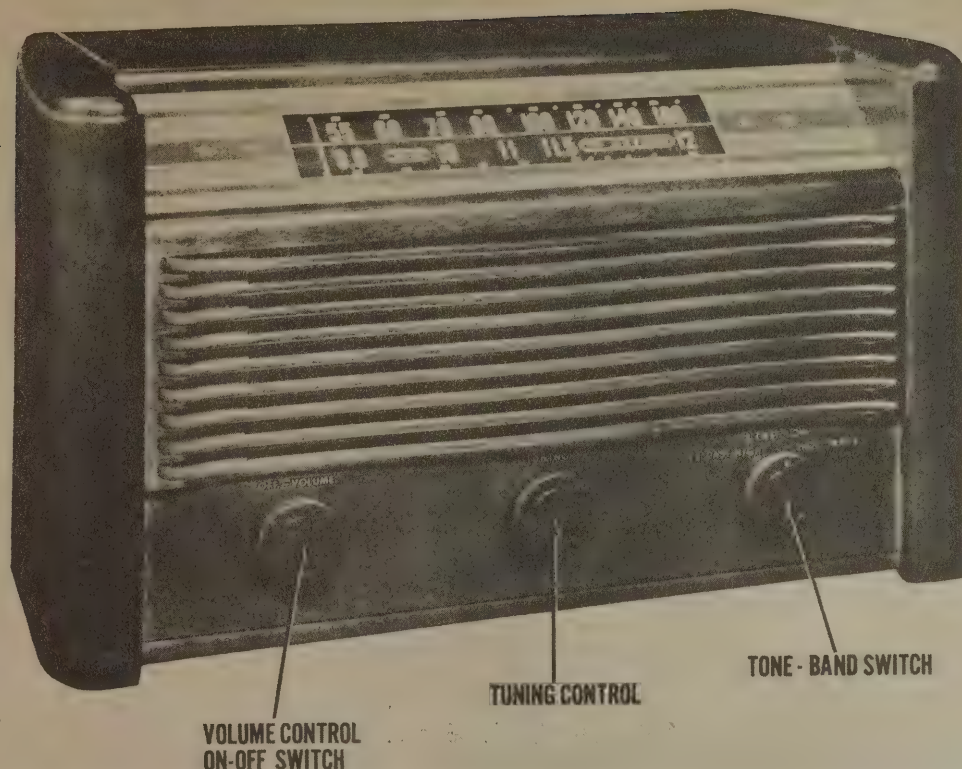
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SB7Y	67 K Ω	16 Ω	45 K Ω	45 K Ω	93 K Ω	1 Ω	12 Ω	2 MEG Ω
2	6SG7	67 K Ω	18 Ω	140 Ω	1.8 MEG Ω	140 Ω	45 K Ω	18 Ω	45 K Ω
3	6SG7	67 K Ω	21 Ω	140 Ω	1.8 MEG Ω	140 Ω	45 K Ω	18 Ω	45 K Ω
4	6SJ7	67 K Ω	8 Ω	0 Ω	580 K Ω	0 Ω	0 Ω	12 Ω	92 K Ω
5	6H6	67 K Ω	4 Ω	160 K Ω	40 K Ω	160 K Ω	0 Ω	0 Ω	0 Ω
6	6SJ7	67 K Ω	8 Ω	0 Ω	4 MEG Ω	22 K Ω	1 MEG Ω	4 Ω	265 K Ω
7	25L6GT	67 K Ω	34 Ω	45 K Ω	45 K Ω	460 K Ω	10 Ω	21 Ω	140 Ω
8	25Z8GT	INF Ω	44 Ω	78 Ω	45 K Ω	78 Ω	0 Ω	34 Ω	45 K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- 1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to B-.



RADIOLA MODEL 61-5

TRADE NAME		Radiola, Models 61-5 (Ch. RC-1023), 61-10 (CH. RC-1023B)					
MANUFACTURER		Radio Corp. of America, Home Instrument Division, Camden, N. J.					
TYPE SET		AC-DC Operated Two Band Superheterodyne Receiver-Self Contained Loop Ant.					
TUBES (SIX)		Types 12SQ7 RF Amp, 12SA7 Converter, 12SK7 IF Amp, 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier					
POWER SUPPLY		105-125 Volts AC-DC		RATING .265 Amp. @ 117 Volts AC			
TUNING RANGE-BROADCAST		540-1600KC		SHORT WAVE 9-11.8 MC			
ALIGNMENT INSTRUCTIONS-READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
Volume control at maximum and output from signal generator as low as possible for all adjustments. Adjust dial pointer to left (max. cap.) mark with rotor in full mesh. Tuning dial (glass plate) may be removed from cabinet and temporarily attached to dial back plate for calibration. Use insulated alignment screwdriver.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #8 of 12SA7. Low side to B-.	455KC	BC (max. C.C.W.)	Quiet point at 1600KC end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. See Note A.
220MMFD	High side to ant. term. Low side to B-.	600KC	"	600KC	"	A5	Rock dial and adjust for maximum output.
220MMFD	"	1300KC	"	1300KC	"	A6	Adjust for maximum output.
220MMFD	"	"	"	"	"	A7	" " " "
							Repeat A5, A6 and A7 for exact calibration.
1 MFD.	"	11.8MC	SW (max. C.W.)	11.8MC	"	A8	Rock gang and adjust for maximum output. See Note B.
47 MMFD	"	"	"	"	"	A9	Rock gang and adjust for output. Repeat A8 and A9 adjustments.
Note A - Use isolation transformer if available. If not, isolation capacitor must be connected between signal generator ground lead and receiver B-. Also decrease dummy ant. to .001 MFD. to prevent excessive hum modulation.							
Note B - Use min. cap. peak if two can be obtained. Check for selection of correct peak by tuning receiver to approximately 10.9 MC where a weaker signal should be received. C.C.W.-Counter-Clockwise C.W.-Clockwise.							

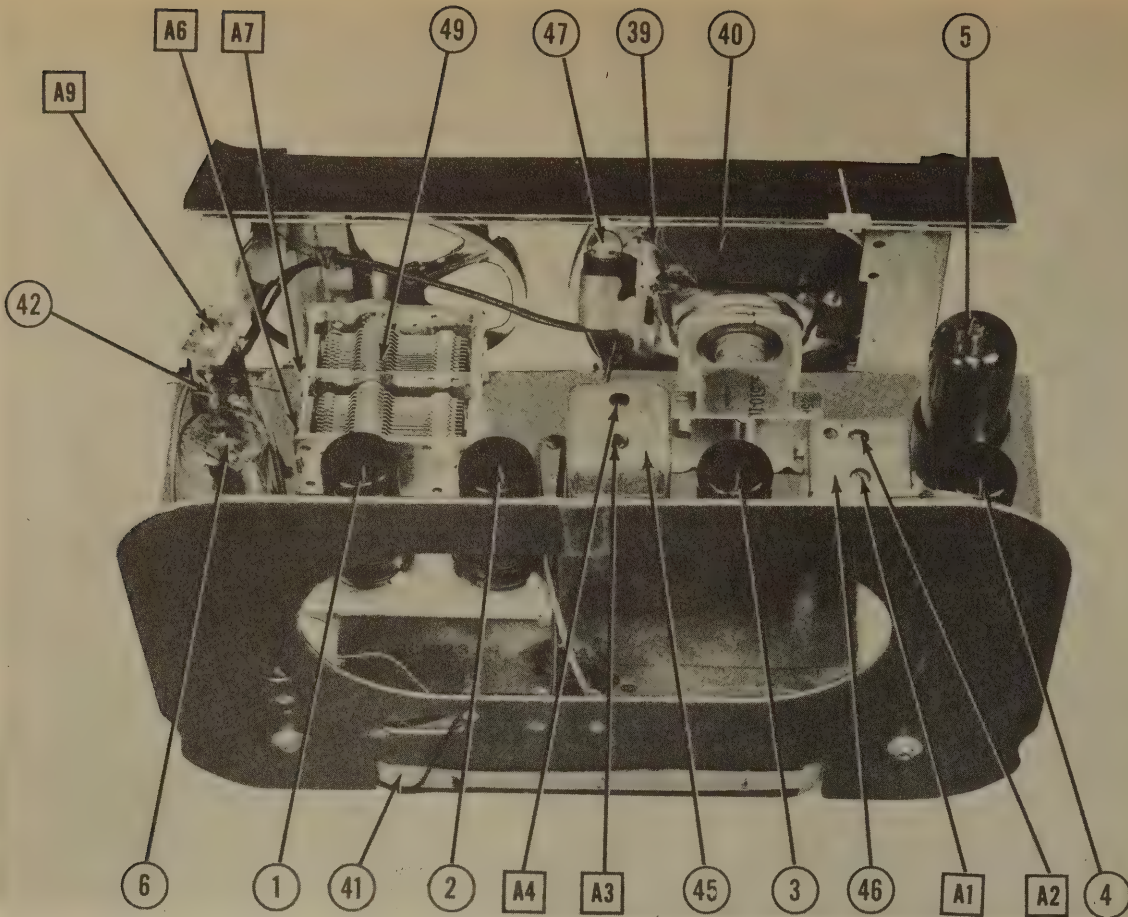
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PARTS LIST AND DESCRIPTIONS TUBES

CHASSIS—TOP VIEW



ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		RADIOLA PART No.	STANDARD REPLACEMENT		
1	RF Amp.	12SG7	12SG7	8BK	
2	Converter	12SA7	12SA7	8R	
3	IF Amp.	12SK7	12SK7	8N	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		RADIOLA PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNFELL-DUBILIER PART No.
7A	30	39152	DSB-5030-150	TA-530	PRSA150-40-40	BRD3515
B	150					
8	.05	70815	S-4-05	TC-15	484-05	DT435
9	.02	70711	S-6-02	TC-12	684-02	DT632
10	.005	70627	S-6-005	TC-25	684-005	DT635
11	.0018	70712	S-6-002	TC-22	684-002	DT632
12	.02	70711	S-6-02	TC-12	684-02	DT632
13	.25	70817	S-4-25	TC-2	484-25	DT425
14	.1	70817	S-4-1	TC-1	484-1	DT421
15	.035	70835	S-6-04	TC-14	684-04	DT634
16	.01	70835	S-6-01	TC-11	684-01	DT631
17	.005	70827	S-6-005	TC-25	684-005	DT635
18	.01	70852	S-6-01	TC-11	684-01	DT631
19	.1	70817	S-4-1	TC-1	484-1	DT421
20	.330	39640	MO-5-33	1FM-33	1468-0003	5W573
21	.22	500	MO-5-45	1FM-45	1468-00005	5W505
22	.56	500	MO-5-315	1FM-315	1468-00015	5W5715
23	150	500	MO-5-315	1FM-315	1468-00015	5W5715
24	150	500	MO-5-315	1FM-315	1468-00015	5W5715

*May be .1 MFD or .2 MFD in some models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		RADIOLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
25A	500KΩ	36242	MR48 #	DL3-133 #	M-60-Z #	Volume Control. (84701-48) See Note
B	Shunt	"	Not Req.	A	Not Req.	Attach " " " " " "
C	Switch	"	M23T	47	SW-A6	" " " " " "

Note. Some models use 47KΩ fixed stop between center and right hand terminals. Contained within IF Can.

When original control has fixed stop as explained above, install a 47KΩ resistor in series with the right hand terminal of the control, and the lead connecting to the same terminal of the original control. (Control viewed from shaft side, terminals down.)

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		RADIOLA PART No.	IRC PART No.	BW PART No.	
26	120Ω	30189		BW-1-120	Br.-Red-Br. RF Cathode
27	1200Ω	30731		BTS-1200	Br.-Red-Red. " Plate Load
28	220KΩ	14583		BTS-220K	Br.-Red-Yl. Converter Grid
29	22KΩ	30492		BTS-22K	Red-Red-Gr. Oscillator " "
30	15 Meg.	38785		BTS-15 Meg.	Br.-Gm.-Blue AVC Network
31	2 Meg.			BTS-2.2 Meg.	Red-Slk.-Gm. " "
32	4.7 Meg.	30931		BTS-4.7 Meg.	Yl.-Vl.-Gm. 1st AF Grid
33	220KΩ	14583		BTS-220K	Red-Red-Yl. " " Plate Load
34	470KΩ	30648		BTS-470K	Yl.-Vl.-Yl. Output Grid
35	120Ω	30189		BW-1-120	Br.-Red-Br. " Cathode
36	1200Ω	6134		BTA-1200	Br.-Red-Red Filter
37	220KΩ	14583		BTS-220K	Red-Red-Yl. Line Isolation

PARTS LIST AND DESCRIPTIONS (Continued) **TRANSFORMER (OUTPUT)**

ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI. SEC.	PRI. SEC.	RADIOILA PART No.	STANCOR THORDARN PART No.	
38	2220Ω	3.4Ω	235Ω	.86Ω	36500	A3876†	Original Part No. 352605 †Due to the tapped primary of the original when using this replacement additional filtering may be necessary.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	RADIOILA PART No.	JENSEN PART No.	
39	PM	3.4Ω	70413	Mod. P5-X ST-105†	Original Part No. 92510-1 †Bracket Improvisation Necessary.
40	4 1/2"	4 1/2"	NOT READILY	REPLACEABLE—USE COMPLETE SPEAKER UNIT.	

R F COILS

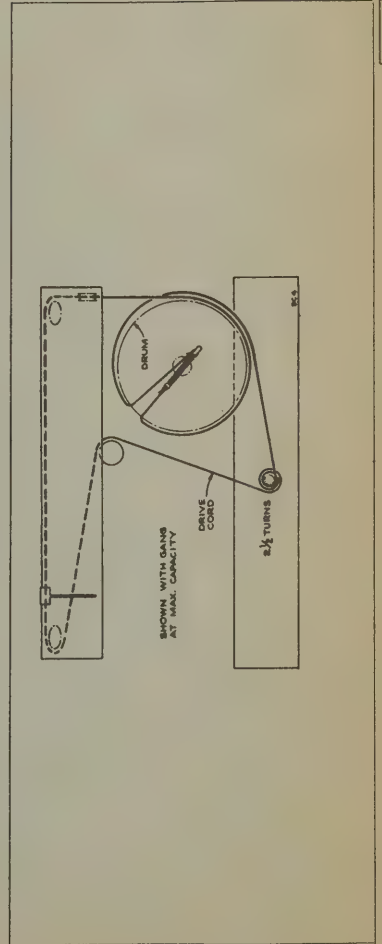
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	RADIOILA PART No.	MEISSNER PART No.	
41	Loop	0Ω	1.1Ω	39841		
42	Ant. Coil	2.3Ω	0Ω	70416		
43	Peaking Coil	1.5Ω		70418		
44	Osc. Coil	1Ω	6Ω	39892		
45	Input IF	8Ω	8Ω	70411	16-5740	
46	Output IF	15Ω	15Ω	70412	16-6670	

DIAL LIGHT

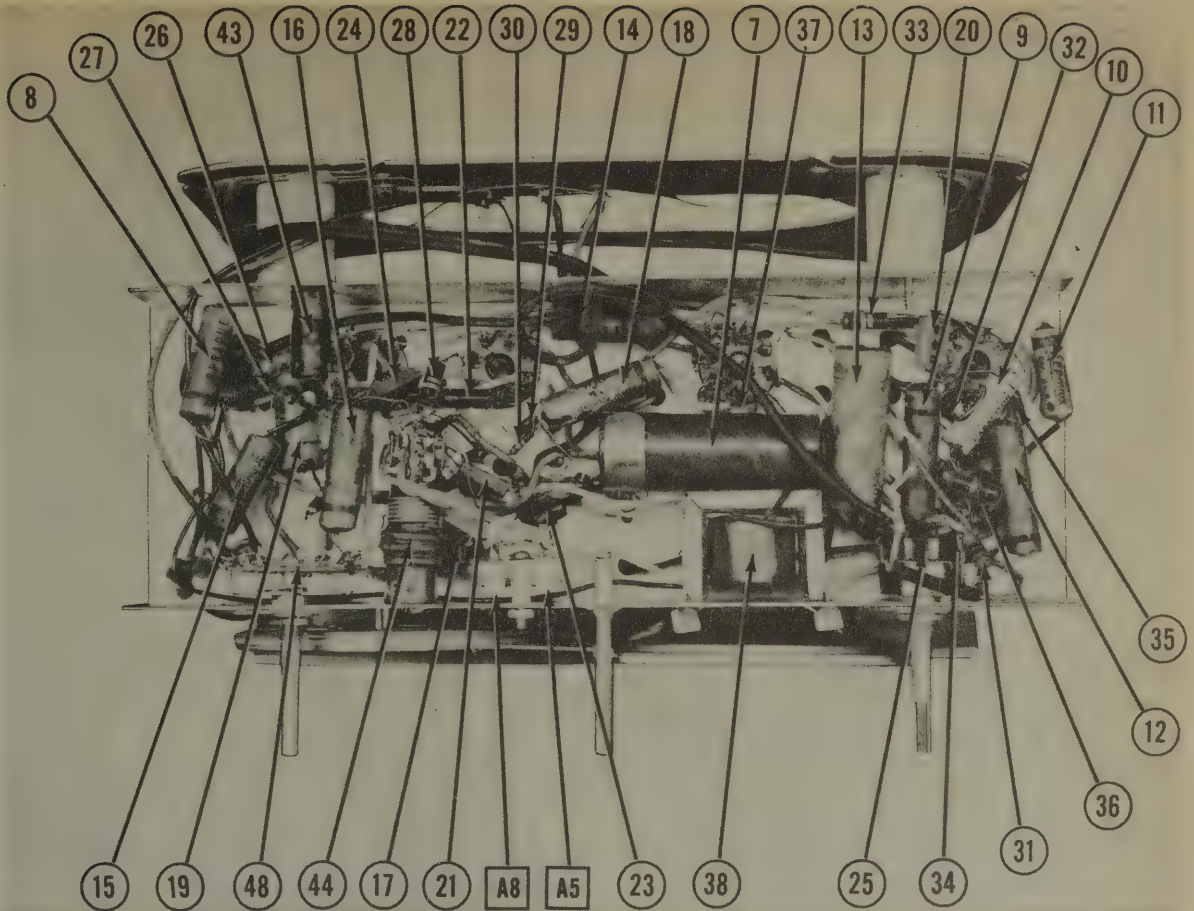
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	RADIOILA PART No.	
47	Bayonet	6-8	0.2	White		Type 51

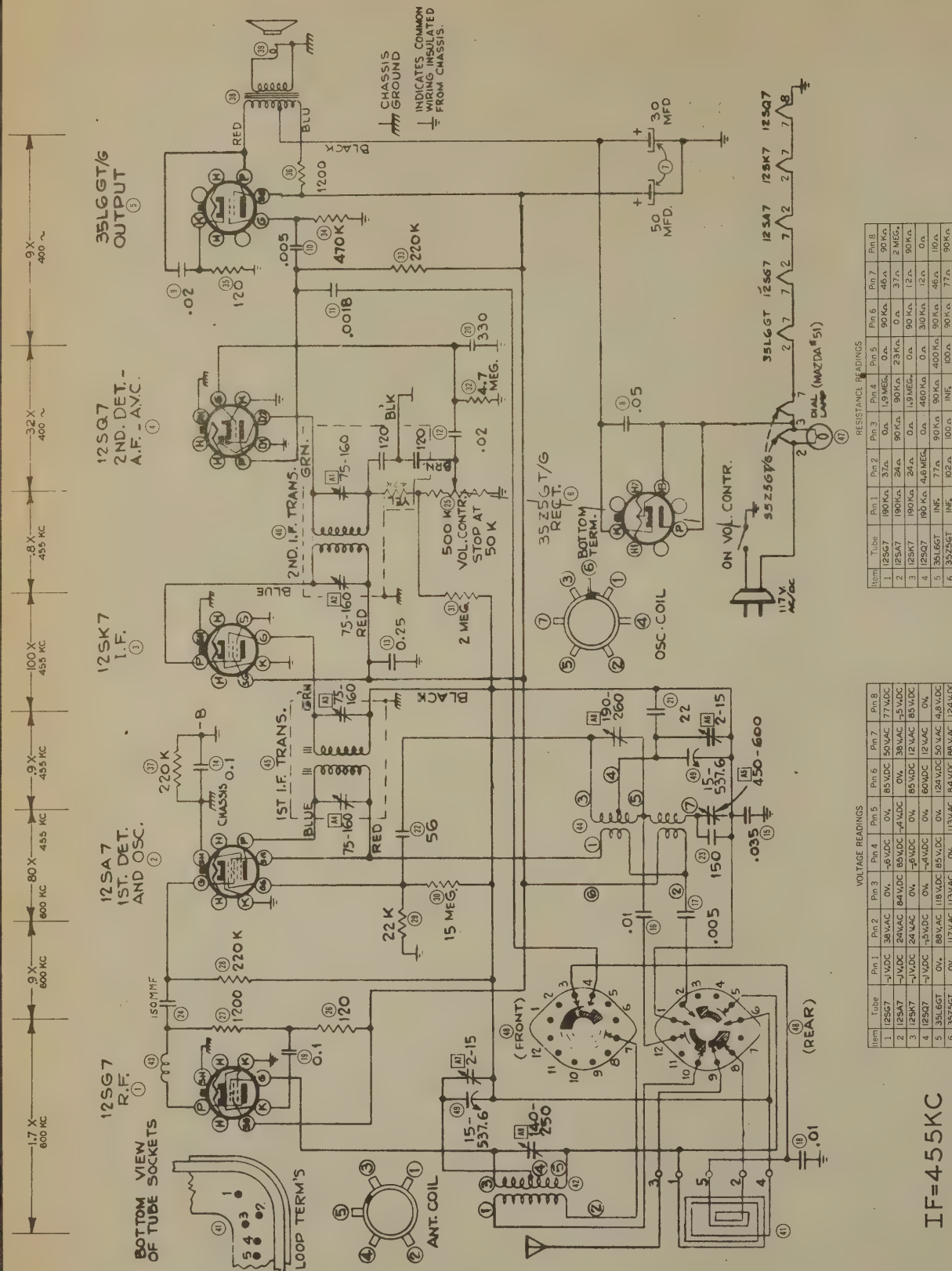
MISCELLANEOUS

ITEM No.	PART NAME	RADIOILA PART No.	NOTES
48	Tone-Handswitch	39837	
49	2-Gang Var. Cap.	70700	
A5	Dual Trimmer	39839	Includes BC Osc. & Ant. Adj. (450-600 MTF)
A8	Trimmer	70417	(190-280 MTF)
A9	Dial Scale	70706	(140-250 MTF)
		71324	(Ch. RC-1023)
			(Ch. RC-1023B)



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SG7	-1VDC	38VAC	0V	-6VDC	0V	85VDC	50VAC	77VDC
2	12SA7	-1VDC	24VAC	84VDC	85VDC	-4VDC	0V	38VAC	-5VDC
3	12SK7	-1VDC	24VAC	0V	-6VDC	0V	85VDC	12VAC	85VDC
4	12SQ7	-1VDC	24VAC	0V	-4VDC	0V	60VDC	12VAC	0V
5	35LG6T	0V	80VAC	118VDC	85VDC	0V	124VDC	50VAC	48VDC
6	35Z5GT	0V	117VAC	113VAC	0V	113VAC	84VDC	88VAC	124VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SG7	190K Ω	51 Ω	23K Ω	0 Ω	15M Ω	0 Ω	90K Ω	40 Ω
2	12SA7	190K Ω	24K Ω	90K Ω	23K Ω	0 Ω	37 Ω	12 Ω	90K Ω
3	12SK7	190K Ω	24K Ω	0 Ω	15M Ω	0 Ω	90K Ω	12 Ω	90K Ω
4	12SQ7	190K Ω	24K Ω	0 Ω	40M Ω	0 Ω	30K Ω	12 Ω	0 Ω
5	35LG6T	INF.	77 Ω	90K Ω	400K Ω	90K Ω	46 Ω	90K Ω	90K Ω
6	35Z5GT	INF.	82 Ω	100 Ω	100 Ω	100 Ω	77 Ω	90K Ω	90K Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS 472-25

IF=455KC

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

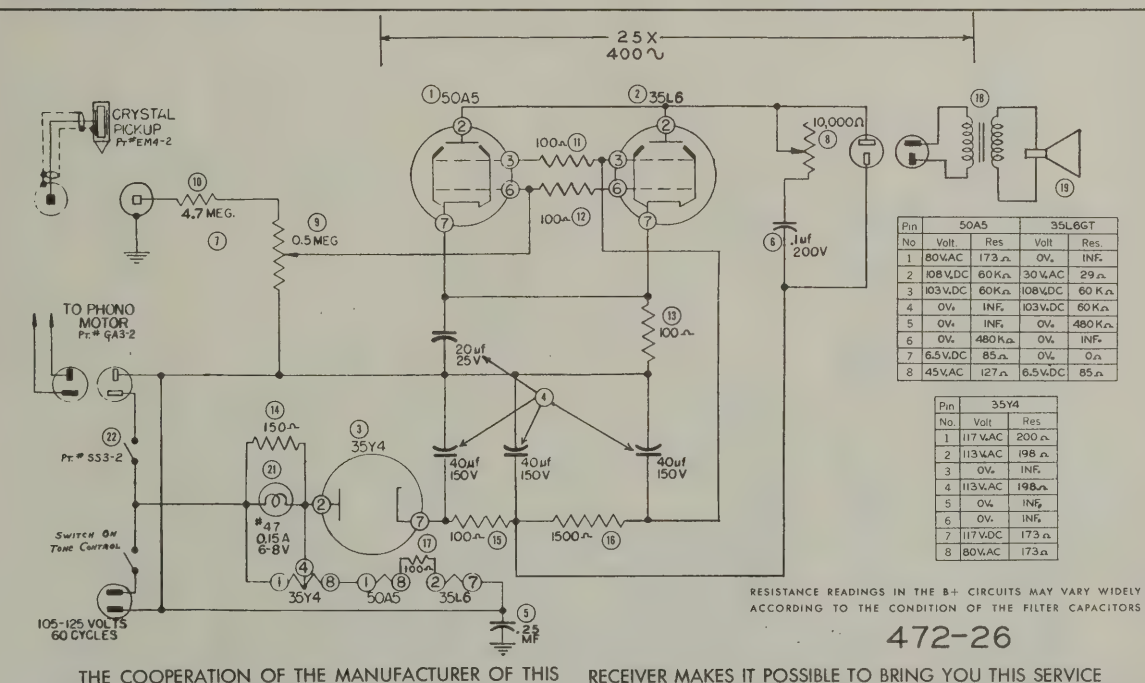


TEMPLE MODEL F-301

TRADE NAME Temple, Model F-301
MANUFACTURER Templetone Radio Mfg. Corp., New London, Conn.
TYPE SET AC Operated Phonograph with 3 Tube Amplifier and Speaker
TUBES (THREE) Types 50A5 or 50L6GT Power Output, 35A5 or 35L6GT Power Output
 35Y4 or 35Z5GT Rectifier

POWER SUPPLY 105-125 Volts AC

RATING .250 Amp. @ 117 Volts AC



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS
TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TEMPLE PART No.	STANDARD REPLACEMENT		
1A	Power Output	50A5	50A5	6AA	
1B	Power Output	50L6GT	50L6GT	7AC	
2A	Power Output	35A5	35A5	6AA	
2B	Power Output	35L6GT	35L6GT	7AC	
3A	Rectifier	35Y4	35Y4	5AL	
3B	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TEMPLE PART No.	SOLAR PART No.	SPRAGUE PART No.	CORNELL-DUBILIER PART No.	
4A	40	CE1-4A83	DY-419	EL-443	AF868D4A	UP7DJ19 FP409
B	150					
C	150					
D	20					
5	.25					
6	.25	CP10W45EX	S-4-25	TC-2	DT4P25	TP430
7	470		S-4-1	TC-1	DT4P1	TP428
			NO.5-35	1F7-35	5K575	MC245

*Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TEMPLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
8A	10KΩ	AP8-103-B	MR18	D13-116	M-81-Z	Tone Control.
B	Switch	Not Req.	Not Req.	A	Not Req.	Attach to 8A per instructions
C	Switch	Not Req.	MR26	41	SW-A	" " " "
9A	500KΩ	RPG-504-B	MR48	D13-133	M-60-Z	Volume Control.
B	Switch	Not Req.	Not Req.	A	Not Req.	Attach to 9A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		TEMPLE PART No.	IRC PART No.	
10	4.7 Meg.		BTS-4.7 Reg.	V1.-V1.-Grn. Series Phono
11	100Ω	RC20BF10M	EW-1-100	Br.-Blk.-Br. Parasitic Suppressor
12	100Ω	RC20BF10M	EW-1-100	Br.-Blk.-Br. " "
13	100Ω	RC30BF10M	EW-1-100	Br.-Blk.-Br. Output Cathode
14	150Ω	EW-1-150		Br.-Grn.-Br. Pilot Light Shunt
15	100Ω	RC20BF10M	EW-2-100	Br.-Blk.-Br. Filter
16	1500Ω	RC20BF152M	BTS-1500	Br.-Grn.-Red
17	100Ω		AB-100	Filament Dropping

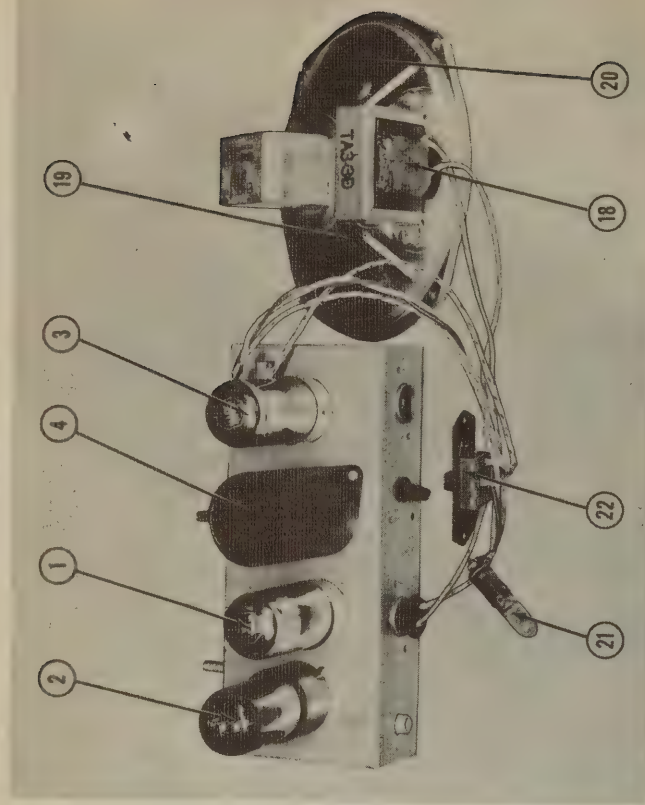
TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA		INSTALLATION NOTES
		TEMPLE PART No.	STANCOR THORDARN PART No.	
18	IMPEDANCE PRI. SEC. PRI. SEC.	TA3-3	A-3865 T22845	

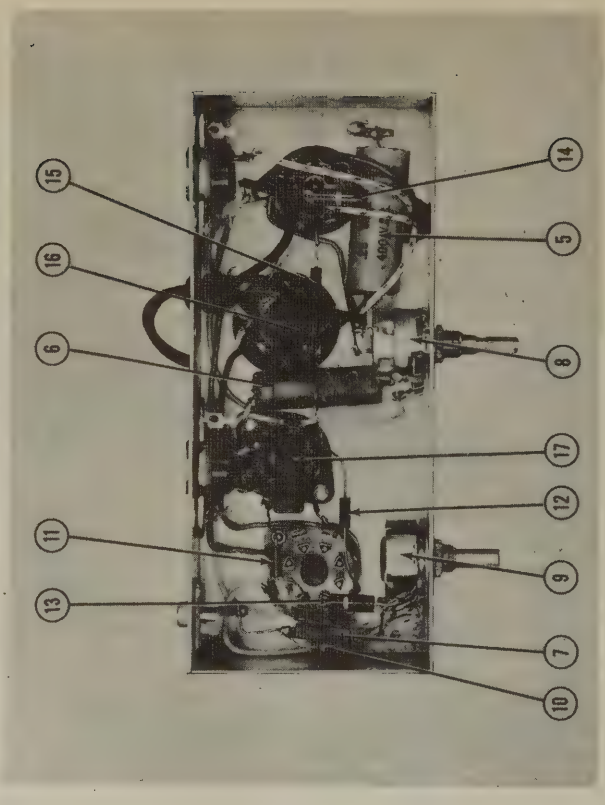
SPEAKER

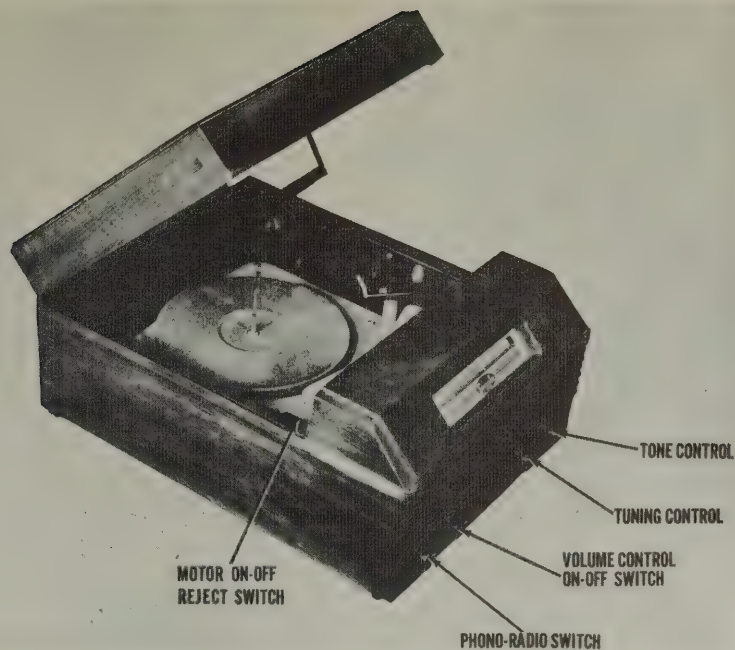
ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		TEMPLE PART No.	JENSEN PART No.	
19A	FIELD		ST-108	
B	VC IMP.		Mod. pg-X	
	3.0Ω			
20	CONE DIA.			Alternate Speaker
	6"			
				NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





TEMPLE MODEL F-617

TRADE NAME	Temple Model, F-617		
MANUFACTURER	Templetone Radio Mfg., Corp., New London, Conn.		
TYPE SET	AC Operated Combination Automatic Phono-Superheterodyne Receiver with Self Contained Loop Antenna		
TUBES (SIX)	Types 12SK7 RF Amp., 12SA7GT Converter, 12SK7 IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier		
POWER SUPPLY	117 Volts AC	RATING	.275 Amps. @ 117V AC
TUNING RANGE—BROADCAST	535-1600KC		

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator to B-. Volume control at maximum volume position and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	High freq. end of dial. (Variable fully open)	Across Voice coil	A1, A2, A3, A4.	Adjust for maximum output.
200 MMF.	High side to ext ant lead. Low side to chassis.	1600KC	"	"	A5	"
200 MMF.	"	1400KC	Tune for maximum output.	"	A6	"

DISASSEMBLY INSTRUCTIONS

1. Remove the push-on type control knobs and felt washers.
2. Remove the four wood screws from the phono-motor board.
3. Remove the two Phillips head screws from the back radio board. Remove board.
4. Remove three Phillips head screws holding top ratchet hinge assembly.
5. Lift up phono-motor board on its side and disconnect the phono-motor plug and phono pick-up plug from the receiver chassis.
6. Remove phono-motor board from cabinet.
7. Remove three Phillips head screws from side panel board. Remove panel board. Now remove loop antenna which is held to cabinet by two clip staples.
8. Pull line cord through the bottom round hole on the left side. (Cabinet viewed from front).
9. Remove three Phillips head screws and washers holding receiver chassis to cabinet. Remove chassis and loop antenna from cabinet.

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PARTS LIST AND DESCRIPTIONS TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TEMPLE PART No.	STANDARD REPLACEMENT		
1	RF Amp.	12SK7	12SK7	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7	12SK7GT	8N	
4	Det.-AVC-AF	35L6GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TEMPLE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	80	161-522	DY-804020-150	EL-123	AF844D	Filter
7B	40			EL-24	PRS150-50	
7C	20					
8	.1		S-4-1	TC-1	484-.1	Line Filter
9	.01		S-4-01	TC-11	484-01	Output Plate Bypass
10	.005		S-6-005	TC-25	684-005	Tone Compensation
11	.005		S-6-005	TC-25	684-005	Audio Coupling
12	.005		S-6-005	TC-25	684-005	"
13	.01		S-4-01	TC-11	484-01	Bias Filter
14	.05		S-4-05	TC-15	484-05	IF Screen Bypass
15	.1		S-4-1	TC-2	484-.1	AVC Filter
16	.25		S-4-25	TC-2	484-.25	Line Isolation
17	.1		M0.5-31	1FM-31	1488-0001	RF Bypass Pwr. Supp.
18	100		M0.5-41	1FM-41	1488-0001	Output Grid Bypass
19	10		M0.5-31	1FM-31	1488-0001	Fixed Trimmer
20	500		M0.5-31	1FM-31	1488-0001	Osc. Grid Capacitor
21	100		M0.5-31	1FM-31	1488-0001	RF Coupling

* Parallel sections to obtain desired capacity.

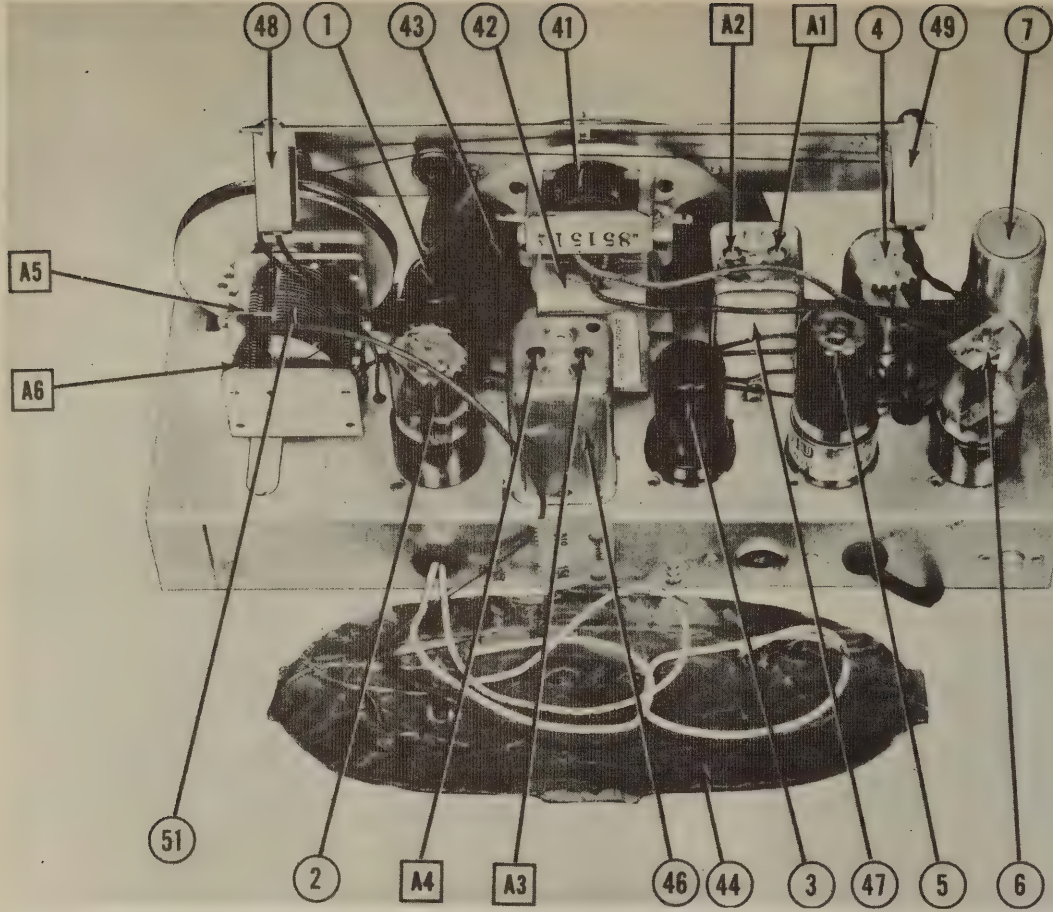
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TEMPLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22A	500K2	1	RP5-2	D13-133	AM-60-Z	Volume Control.
B	Shaft	Not Req.	Not Req.	E	SW-A	Attach to 22A per instructions.
C	Switch	RP6-504B	RP6-504B	D13-133	AM-60-Z	"
22A	500K2	Not Req.	Not Req.	E	KSS-3	Tone Control.
B	Shaft					Attach to 23A per instructions.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		TEMPLE PART No.	IRC PART No.	
24	330K2		BTS-3300	Or.-Or.-Red RF Plate Load
25	220K2		BTS-220K	Red-Red-Yl. Line Isolation
26	4700K2		BTS-4700	Yl.-Vi.-Red Converter Grid
27	10K3		BTS-10K	Br.-Blk.-Or. Oscillator "
28	10K2		BTS-10K	Br.-Blk.-Or. "
29	100K2		BTS-100K	Br.-Blk.-Or. IF Screen Dropping
30	2.2 Meg.		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
31	4.7 Meg.		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
32	330K2		BTS-330K	Or.-Or.-Yl. AF Plate Load
33	220K2		BTS-220K	Red-Red-Yl. Output Grid
34	47K		BW-1-47	Yl.-Vi.-Blk. Cathode
35	910K2		BTS-820K	White-Br.-Yl. Series Shunt
36	470K2		BTS-470K	Yl.-Vi.-Yl. Series Shunt
37	180K2		BW-2-180	Br.-Gray-Br. Filter
38	100K2		BW-1-100	Or.-Or.-Blk. Surge Limiter
39	33K2		BW-1-33	Br.-Grn.-Er. Pilot Light Shunt
40	150K2		BW-1-150	"

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued) TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		TEMPLE PART No.	THORNDYKE PART No.	
41	1860Ω 3.3Ω	150Ω	.58Ω	851-514	A-3876 T22S45	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	TEMPLE PART No.	JENSEN PART No.	
42	3.3Ω	780-008	ST-106	Mod. PS-W	
43	4-5/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

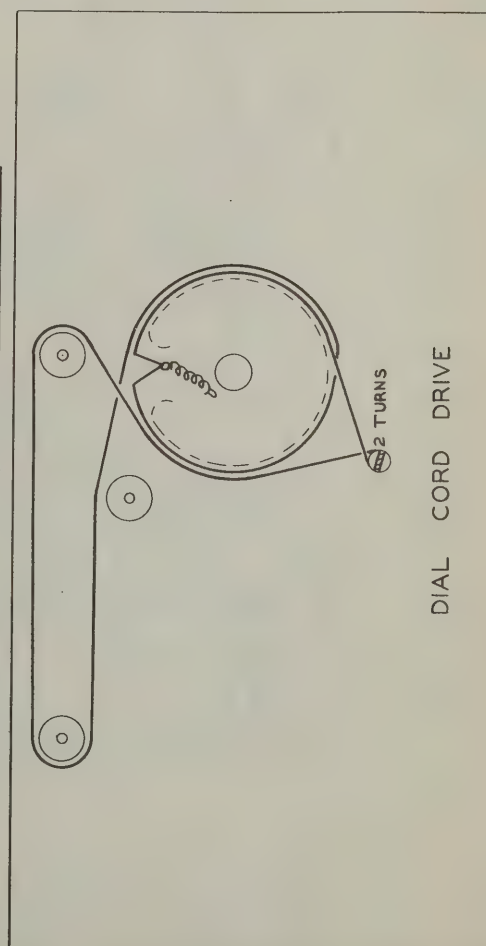
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TEMPLE PART No.	MEISSNER PART No.	
44	Loop Ant.	.2Ω	1.3Ω	L0-2	14-1040	
45	Osc. Coil	6.8Ω	15.5Ω	TM2-1	16-6658	
46	Input IF	15.5Ω	15.5Ω	TM2-3	16-6670	
47	Output IF	16Ω				

DIAL LIGHT

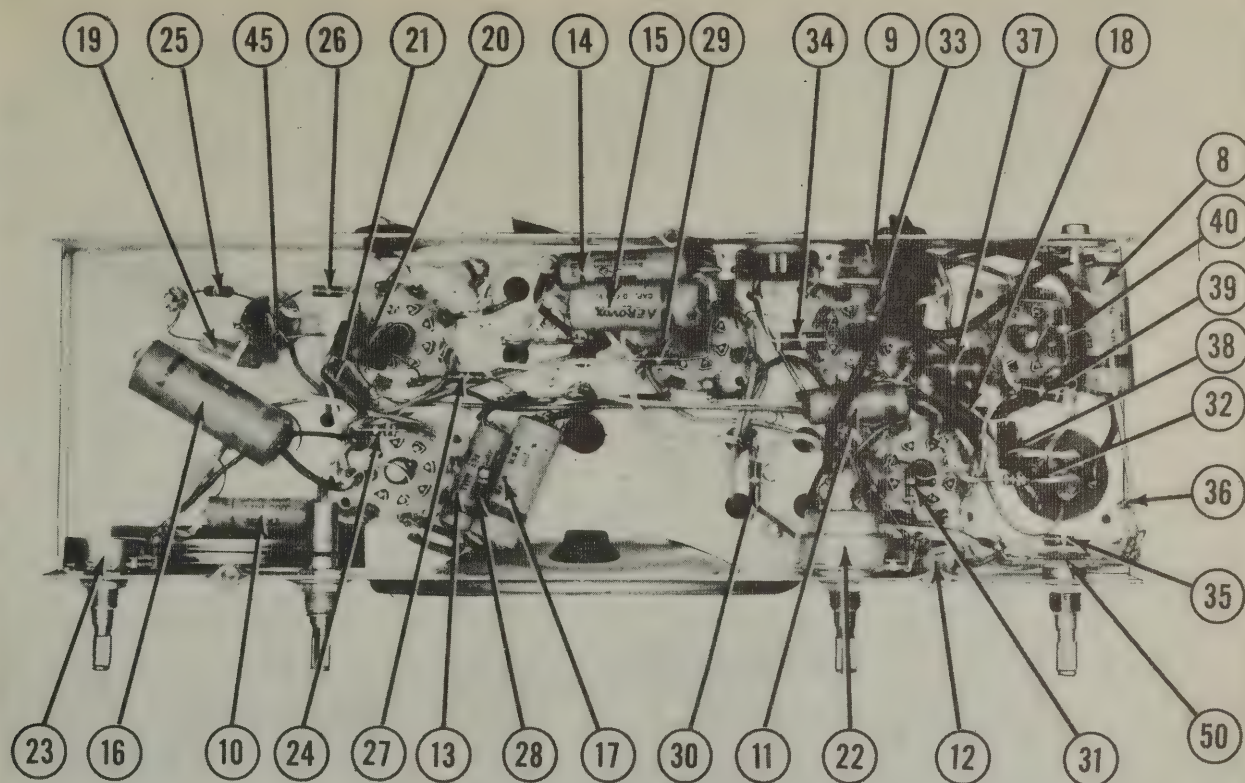
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	TEMPLE PART No.	
48	Bayonet	2.9	0.17	White		Type 291
49	Bayonet	2.9	0.17	White		Type 291

MISCELLANEOUS

ITEM No.	PART NAME	TEMPLE PART No.	NOTES
50	Switch		Radio-Phono
51	2 gang Var. Cap		(23-440 MUF, 20-186MUF)



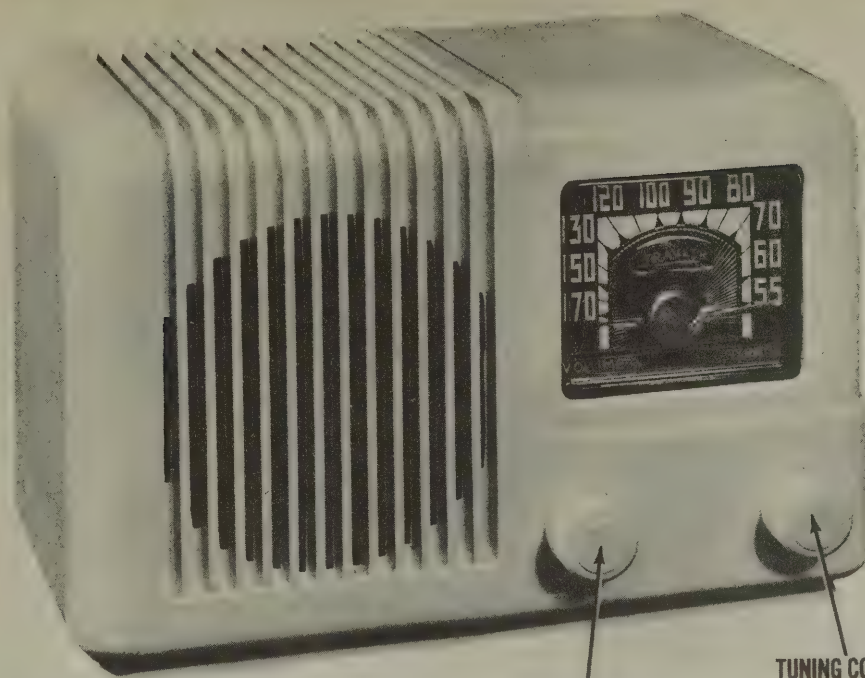
CHASSIS—BOTTOM VIEW



PHOTOFACT* Folder

TRAV-LER
MODEL 5002 SERIES

TRAV-LER
MODEL 5002 SERIES



VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

TRAV-LER
MODEL 5002 SERIES

TRAV-LER MODEL I5002

TRADE NAME		Trav-Ler, Model 5002 Series (Chassis 109)				
MANUFACTURER		Trav-Ler Radio & Tel. Corp. 571 W. Jackson, Chicago, Ill.				
TYPE SET		AC-DC Operated Superheterodyne Receiver-Self Contained Loop Antenna				
TUBES (SIX)		Types 12SK7 or 12BA6 RF Amp., 12SA7 Converter, 12SK7 or 12BA6 IF Amp. 12SQ7 or 12AT6 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT or 35W4 Rectifier				
POWER SUPPLY		110-125 Volts AC-DC		RATING .220 Amp @ 117 Volts AC		
TUNING RANGE—BROADCAST		540-1720KC				
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
To set pointer turn variable fully closed and set pointer parallel to horizontal line on dial plate at low frequency end. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use isolation transformer if available. If not connect a capacitor in series with low side of signal generator and B-. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
.1 MFD.	"	1720KC	"	"	A5	Adjust for maximum output.
200 MMFD	High side to ext. ant. lead. Low side to B-.	1400KC	Tune for maximum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		TRAV-LER PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1A	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12BA6	12BA6	7CC	
3A	IF Amp.	12SA7GT	12SA7GT	8AD	
3B	IF Amp.	12SK7GT	12SK7GT	8N	
4A	Det.-AVC-AF	12BA6	12BA6	7CC	
4B	Det.-AVC-AF	12SK7GT	12SK7GT	8Q	
5	Power Output	12A16	12A16	7BT	
6A	Rectifier	35L6GT	35L6GT	7AC	
6B	Rectifier	35Z5GT	35Z5GT	6AD	
7		35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TRAV-LER PART No.	SOLAR PART No.	SPRAGUE PART No.	CORNELL-DUBILER PART No.	
7A	40	EC-3	DSB2X40-150	TA-240	BRL42115	2N514
8	20					
8B	150					
9	400	PC-5	S-4-05	TC-15	DT4S5	TP428
10	400	PC-7	S-4-01	TC-11	DT4S1	TP421
11	400	PC-7	S-4-01	TC-11	DT4S1	TP421
12	400	PC-5	S-4-05	TC-15	DT4S5	TP428
13	400	PC-5	S-4-05	TC-15	DT4S5	TP428
14	400	PC-8	S-4-01	TC-11	DT4S1	TP421
15	400	PC-7	S-4-01	TC-11	DT4S1	TP421
16	500	PC-5	MO-5-35	1PM-35	SW5T5	MC235
17	500	PC-2	MO-5-31	1PM-31	SW5T1	MC235
18	500	PC-4	MO-5-45	1PM-45	SW5Q5	MC235
19	500	PC-2	MO-5-31	1PM-31	SW5T1	MC235

*Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TRAV-LER PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
20A	500KΩ	1	MR48	D13-133	M-60-Z	Volume Control. See Note 1
20B	Shaft		Not Req.	A	Not Req.	Attach to 20A per instructions
20C	Switch		M26	41	SW-A	"
20A	1 Meg.	1	MR53	D13-137	M-63-Z	Volume Control. See Note 2
20B	Shaft		Not Req.	A	Not Req.	Attach to 20A per instructions
20C	Switch		M26	41	SW-A	"

Note 1 used in later production.

Note 2 " " early

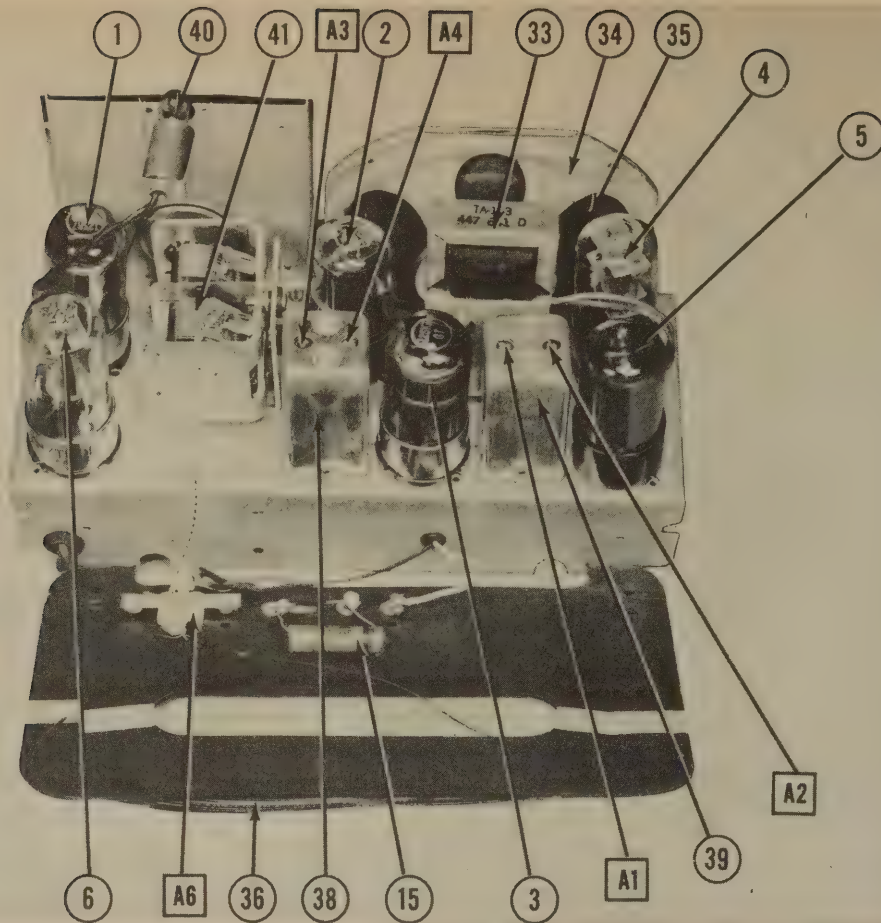
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		TRAV-LER PART No.	MALLORY PART No.	IRC PART No.	
21	2200Ω		BTS-2200		Red-Red-Red RF Plate Load
22	2500Ω		BTA-2200		Red-Grn.-Red Filter
23	47KΩ	IR-10	BTS-47K		Y1.-V1.-Or. Converter Grid
24	33KΩ	IR-15	BTS-33K		Or.-Or.-Or. Oscillator Grid
25	3.9 Meg.	IR-23	BTS-3.9 Meg.		Or.-White-Grn. AVC Network
26	47KΩ	IR-10	BTS-47K		Y1.-V1.-Or. Diode RF Filter
27	2 Meg.	IR-13	BTS-2.2 Meg.		Red-Blk.-Grn. AF Grid
28	510KΩ		BTS-470K		Grn.-Br.-Yl. AF Plate Load
29	510KΩ		BTS-470K		Grn.-Br.-Yl. Output Grid
30	220Ω	IR-5	BW-220		Red-Red-Br. Cathode
31	39KΩ		BW-39		Or.-White-Blk. Rectifier Ballast
32	1 Meg.	IR-12	BTS-1 Meg.		Br.-Blk.-Grn. AVC Network

Note 3 Not used in all models.

Note 4 Models using item #32 use a 2 meg. resistor in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued) **TRANSFORMER (OUTPUT)**

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	TRAV-LER PART No.	THORDARN PART No.	
33	2040Ω 2.5Ω	150Ω .6Ω	SPK-4	T22845 #	# Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	TRAV-LER PART No.	JENSEN PART No.	
34	PM	2.8Ω	SPK-4	ST-1051	† Fabricate new mounting bracket.
35	CONE DIA. 1/2"	1/2"	NOT READILY REPLACEABLE	Mod. PS-X	

R F COILS

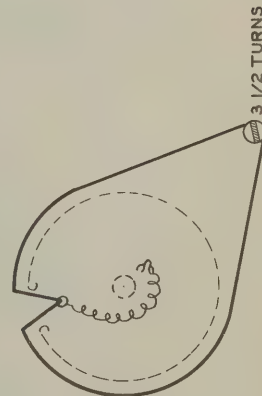
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRAV-LER PART No.	MEISSNER PART No.	
36	Loop	.1Ω	1.5Ω	LL-1		
37	Osc. Coil	7.8	10-2	LL-2	14-1040	
38	Input If	19Ω	19Ω	LI-1	16-8686	
39	Output If	20.5Ω	19Ω	LI-2	16-8667	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	TRAV-LER PART No.	
40	Bayonet	6-8	0.15	Brown		Type 47

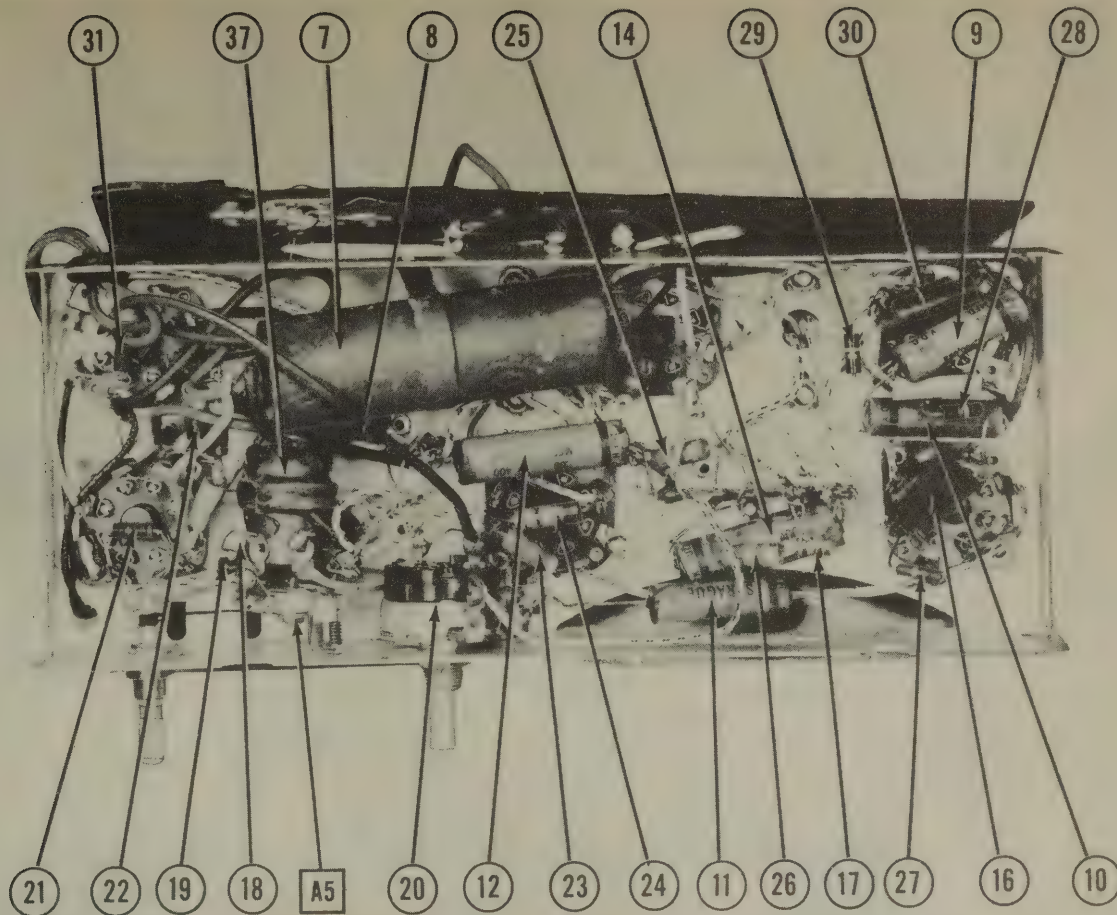
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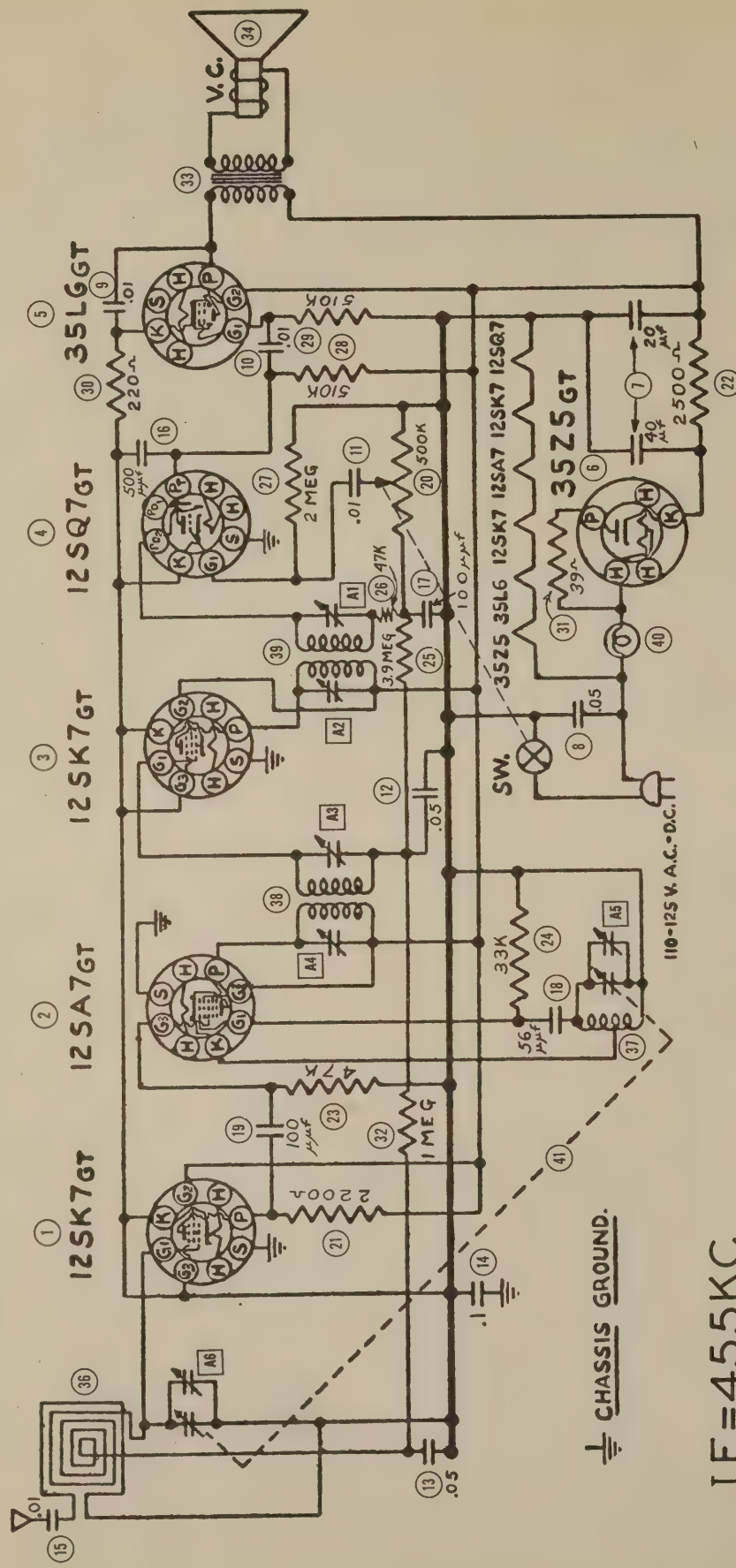
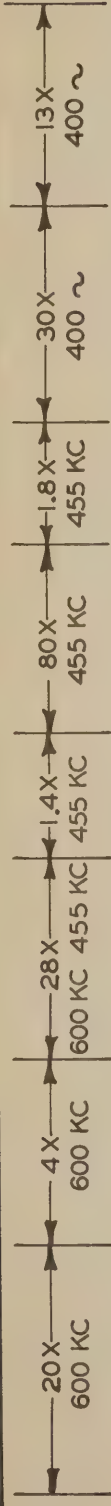
ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
41	2 Gang Var. Cap.	GC-2	(12-176 MMF, 16-385 MMF)
A5	Trimmer	TC-6	Osc. Trimmer
A6	Trimmer	TC-7	Ant. Trimmer



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





CHASSIS GROUND.

IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	OV.	36 VAC	OV.	-9 VDC	OV.	67 VDC	25 VAC	52 VDC
2	12SA7GT	OV.	25 VAC	67 VDC	67 VDC	-3.9 VDC	OV.	13 VAC	OV.
3	12SK7GT	OV.	51 VAC	OV.	-9 VDC	OV.	67 VDC	36 VAC	67 VDC
4	12SQ7GT	OV.	-11 VDC	OV.	-4 VDC	OV.	33 VDC	13 VAC	OV.
5	35L6GT	OV.	87 VAC	121 VDC	67 VDC	OV.	OV.	51 VAC	41 VDC
6	35Z5GT	OV.	117 VAC	113 VAC	OV.	112 VAC	OV.	87 VAC	124 VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	INF.	33 Ω	0 Ω	4 MEG.	0 Ω	65 KΩ	23 Ω	66 KΩ
2	12SA7GT	0 Ω	23 Ω	55 KΩ	55 KΩ	30 KΩ	5 Ω	12 Ω	37 KΩ
3	12SK7GT	INF.	43 Ω	INF.	4 MEG.	0 Ω	55 KΩ	33 Ω	55 KΩ
4	12SQ7GT	0 Ω	1.7 MEG.	0 Ω	470 KΩ	INF.	580 KΩ	12 Ω	0 Ω
5	35L6GT	INF.	71 Ω	55 KΩ	55 KΩ	480 KΩ	0 Ω	43 Ω	180 Ω
6	35Z5GT	INF.	95 Ω	93 Ω	INF.	130 Ω	INF.	71 Ω	55 KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-28

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of +10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

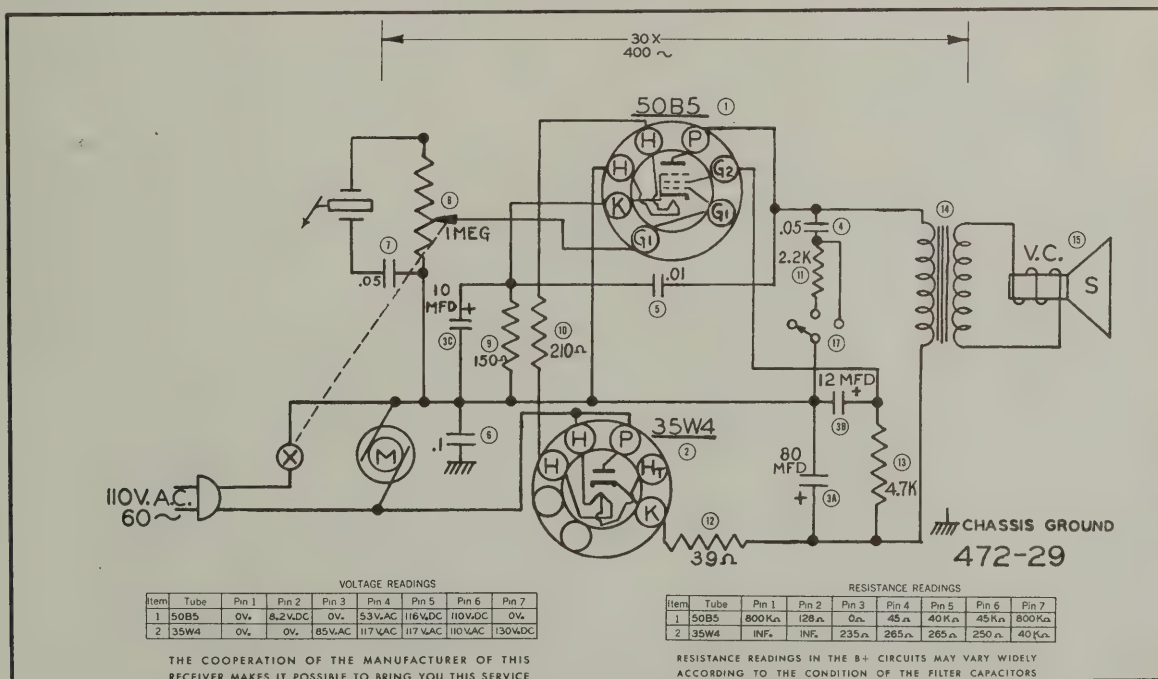


TONE CONTROL

TRAV-LER MODEL 7003

TRADE NAME	Trav-ler, Model 7003 (Ch. 501)
MANUFACTURER	Trav-ler Radio & Tel. Corp., 571 W. Jackson, Chicago, Ill.
TYPE SET	AC Operated Phonograph with 2-Tube Amplifier & Speaker
TUBES (TWO)	Types, 50B5 Power Output, 35W4 Rectifier
POWER SUPPLY	110-125 Volts AC
	RATING .245 Amp. @ 117 Volts AC

TRAY-LER
MODEL 7003



1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		TRAV-LER PART No.	STANDARD REPLACEMENT	RAMA BASE TYPE	
1	Power Output	50B5	50B5	7BZ	
2	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TRAV-LER PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
3A	CAP. 80	EC-5	15B-8040-150	EL-432	EZ53215Q	Filter - Red
B	12					Cath. Bypass - Blue
C	10					Tone Compensation
4	.05	PC-5	M-20-25	TC-15	D74S5	Output Plate Bypass
5	.01	PC-7	S-4-01	TC-11	D74S1	Line Isolation
6	.1	PC-8	S-4-1	TC-1	D74P1	Phono Isolation
7	.05	PC-5	S-4-05	TC-15	D74S5	

†Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TRAV-LER PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
8A	RESIST. 500KΩ	VC-6	MK401	D13-133	AM-80-2	Volume Control - See Note 1
B	1 Meg.		Not Req.	E	KSS-3	Attach to 8A per instructions
C	Switch		MK402	D13-137	SW-A	Volume Control - See Note 2
			Not Req.	E	KSS-3	Attach to 8A per instructions
			M26	41	SW-A	

Note 1 - Used in early production.

Note 2 - Used in later production.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		TRAV-LER PART No.	IRC PART No.	
9	150Ω	IR-14	EW-2-150	Br.-Grn.-Br. Output Cathode
10	210Ω	WR-1	ABA-250	Line Dropping-See Note 3
11	2200Ω	IR-7	BTS-2200	Red-Red-Red Tone Compensation
12	39Ω	IR-17	EW-2-39	Or.-White-Blk. Surge Limiter
13	4700Ω	IR-18	BTS-4700	Yl.-Vi.-Red Filter

Note 3 - On IRC replacement set slider at 210Ω from one end.

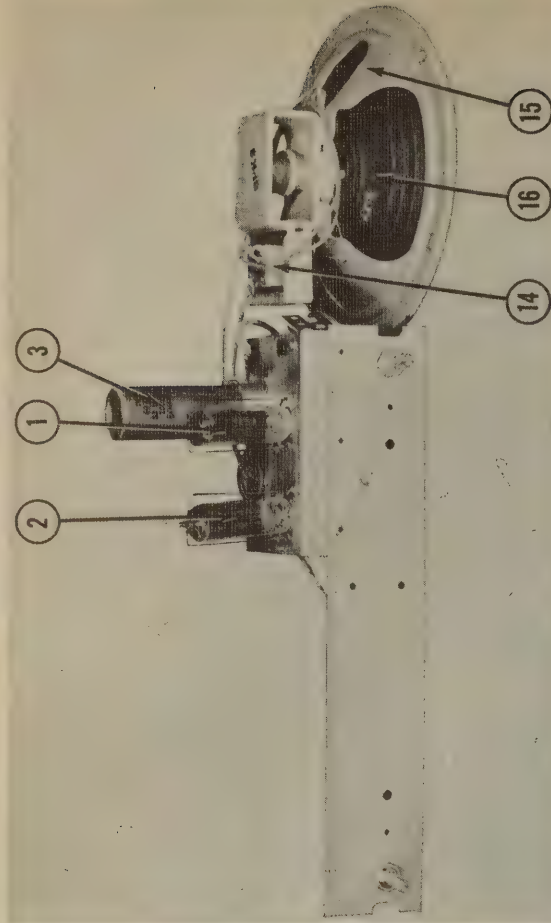
TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		TRAV-LER PART No.	STANCOR PART No.	THORDARN PART No.	
14A	IMPEDANCE 16Ω PRI. SEC. 3.2Ω PRI. SEC. 220Ω PRI. SEC. .4Ω	Part of SPK-3	A-3878*	T22845*	*Bend mounting tabs down, file out slots and mount on original brackets. Used with alternate speaker
B		Part of SPK-2			

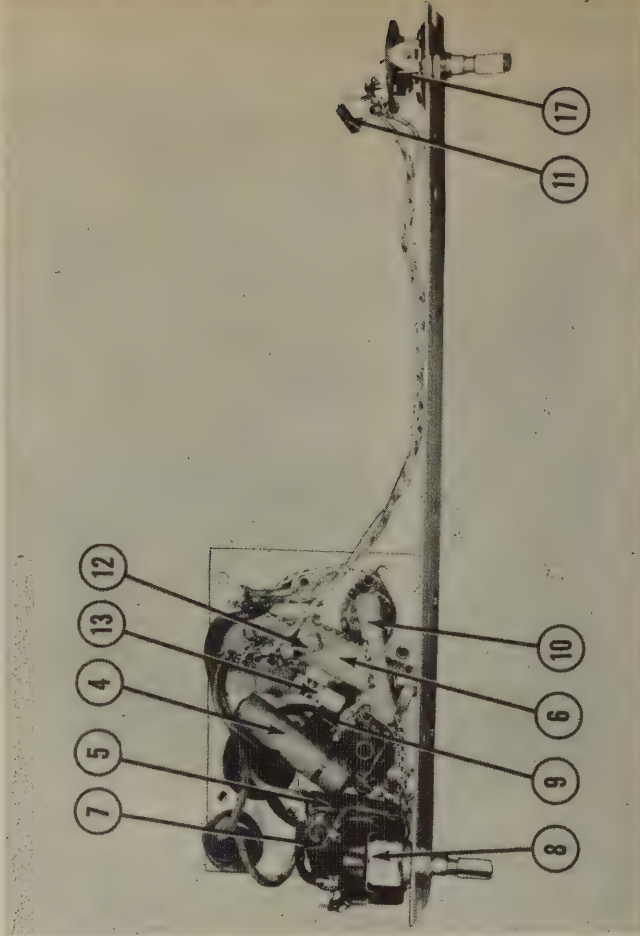
SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		TRAV-LER PART No.	JENSEN PART No.	
15A	FIELD 15A	SPK-3	ST-108	
B	VC IMP. 3.2Ω	SPK-2	Mod. PB-X	Alternate Speaker
16	CONE DIA. 6"			NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



PHONO-RADIO SWITCH

TONE CONTROL

VOLUME CONTROL

ON-OFF SWITCH

TUNING CONTROL

TRUETONE MODEL D1644

TRADE NAME	Truetone, Model D1644		
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.		
TYPE SET	AC Operated Combination Auto. Phono. - Superheterodyne Receiver, Self Contained Loop Antenna		
TUBES (SIX)	Types, 6SK7GT RF Amp., 6SA7GT Converter, 6SK7GT IF Amp., 6SQ7GT Det.-AVC-AF, 6K6GT Power Output, 5Y3GT Rectifier.		
POWER SUPPLY	117 Volts AC		
TUNING RANGE—BROADCAST	535-1725KC	RATING	.47 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn variable fully closed and set pointer at the first mark from left end of dial plate. Place coupling link on loop in correct position for external antenna operation while aligning receiver. Volume control in maximum volume position and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 8 of 6SA7. Low side to chassis.	455KC	High freq. end of dial. (Variable fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
250 MMF.	High side to ant. terminal on loop. Low side to gmd. terminal.	1725KC	"	"	A5	" " " "
250 MMF.	"	1500KC	Tune for maximum output.	"	A6,A7.	Adjust for maximum output in order given.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		PMA BASE TYPE	INSTALLATION NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT		
1	RF Amp. Converter	6SK7GT	6SK7GT	8N	
2	IF Amp.	6SA7GT	6SA7GT	8AD	
3	Det.-AVC-AF	6SK7GT	6SK7GT	8N	
4	Power Output	6K6GT	6K6GT	8Q	
5	Rectifier	5Y3GT	5Y3GT	7AC	
6				5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TRUETONE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7	16	A18-274	M-16-450	UT-16	PRS450-16	Filter
8	450	A18-279	M-16-450	UT-16	PRS450-16	
9	600	A16-153	S-6-005	TC-25	684-005	6K6 Plate Bypass
10	.01	A16-156	S-4-01	TC-11	434-01	Audio Coupling
11	.01	A16-156	S-4-01	TC-11	434-01	Tone Compensation
12	.05	A16-158	S-4-05	TC-15	434-05	Audio Plate Decoup.
13	.01	A16-156	S-4-01	TC-11	434-01	Audio Coupling
14	.05	A16-158	S-4-05	TC-15	434-05	AVC Filter
15	.05	A16-158	S-4-05	TC-15	434-05	IF Screen Bypass
16	.05	A16-158	S-4-05	TC-15	434-05	IF Cath. Bypass
17	.05	A16-158	S-4-05	TC-15	434-05	RF Screen Bypass
18	.05	A16-158	S-4-05	TC-15	434-05	RF Cath. Bypass
19	.05	A16-158	S-4-05	TC-15	434-05	Conv. Screen Bypass
20	.05	A16-158	S-4-05	TC-15	434-05	AVC Filter
21	250	A15-176	M0.5-325	LFM-32	1468-00025	MC240
22	50	A15-175	M0.5-45	LFM-45	1468-00005	MC225
23	50	A15-175	M0.5-45	LFM-45	1468-00005	MC225
24	200	A16-153	M0.5-32	LFM-32	1468-0002	MC237
57	.005	A16-153	S-6-005	TC-25	684-005	Ant. Coupling
						Output Plate Bypass *

*Not used in all models.

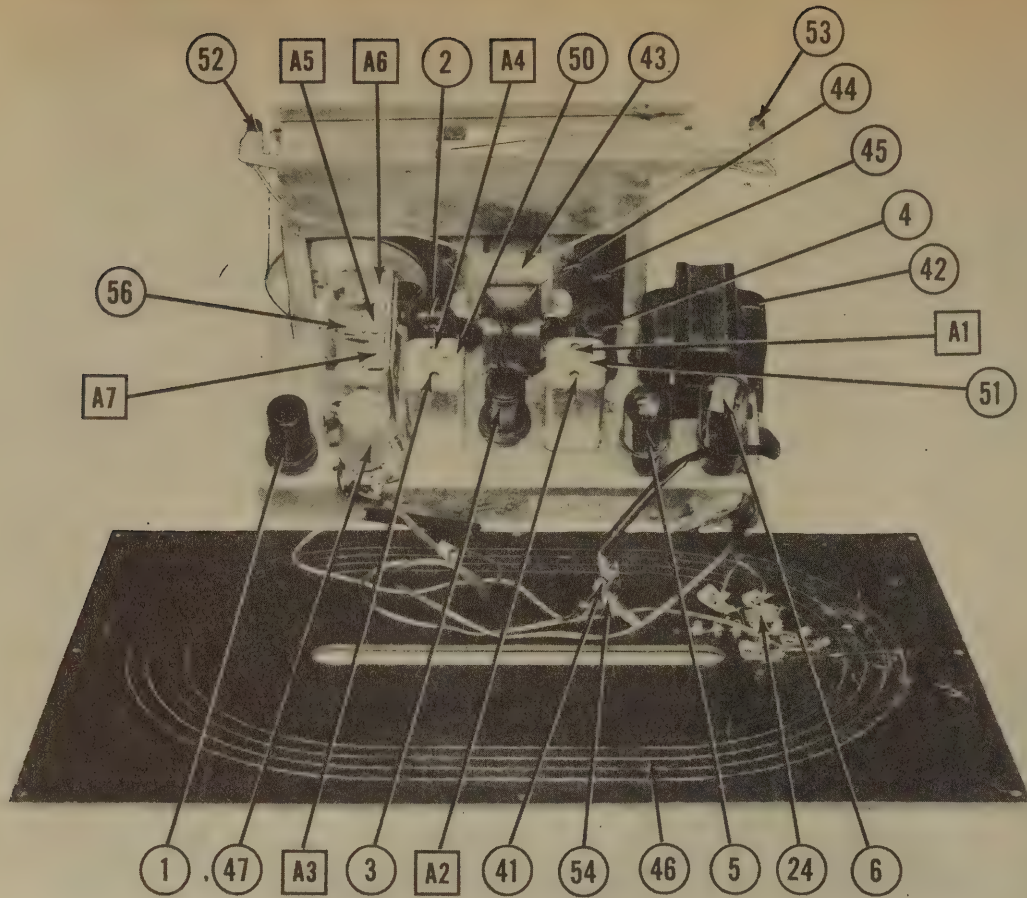
CONTROLS

ITEM No.	BATING	REPLACEMENT DATA			INSTALLATION NOTES
		TRUETONE PART No.	MALLORY PART No.	CLAROSTAT PART No.	
25A	500KΩ	A24-169	Not Req.	AM-80-Z	Volume Control
26A	3 Meg.	A26-123	Not Req.	KSS-3	Attach to 25A per Instructions
B	Not Req.		Not Req.	AM-87-Z	Tone Control
				KSS-3	Attach to 26A per Instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		TRUETONE PART No.	IRC PART No.	
27	220KΩ	A60-667	BTS-220K	Red-Red-Yl. AVC Network
28	100KΩ	A60-671	BTS-100K	Br.-Blk.-Yl. RF Screen Dropping
29	27KΩ	A60-692	ETA-27K	Red-Vl.-Or. Mixer Screen Dropping
30	150Ω	A60-686	BM-#-150	Br.-Grn.-Br. RF Cathode
31	22KΩ	A60-659	BTS-22K	Red-Red-Or. Osc. Grid
32	100KΩ	A60-675	BTS-100K	Br.-Blk.-Red IF Cathode
33	100KΩ	A60-671	BTS-100K	Br.-Blk.-Yl. IF Screen Dropping
34	10 Meg.	A60-663	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
35	220KΩ	A60-667	BTS-220K	Red-Red-Yl. 1st AF Plate Load
36	200KΩ	A60-667	BTS-200K	Red-Blk.-Yl. 1st AF Plate Filter
37	500KΩ	A60-662	BTS-470K	Grn.-Blk.-Yl. Output Grid
38	500Ω	A60-701	ETA-470	Grn.-Blk.-Br. Output Cathode
39	82KΩ	A60-699	ETA-82K	Gray-Red-Or. Bleeder
40	100KΩ	A60-667	BTS-100K	Br.-Blk.-Red Filter
41	200KΩ	A60-667	BTS-220K	Red-Blk.-Yl. Series Phono.

CHASSIS—TOP VIEW

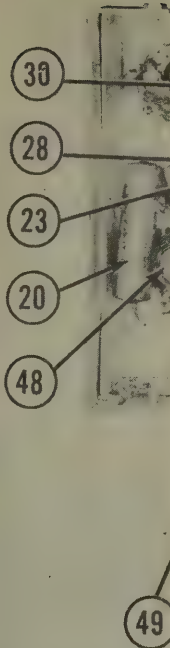


PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	TRUESTONE PART No.	STANCOR PART No.	
42	117V AC 590V CT 4.9V AC 16.2V AC @ .47A @ .059A @ 1.8A @ 1.68A			C30-223	P-6119, T-13R20	

CHASSIS—BOTTOM VIEW



NOTE: VOLTAGE & RESISTANCE READINGS TAKEN IN RADIO POSITION

VOLTAGE READINGS

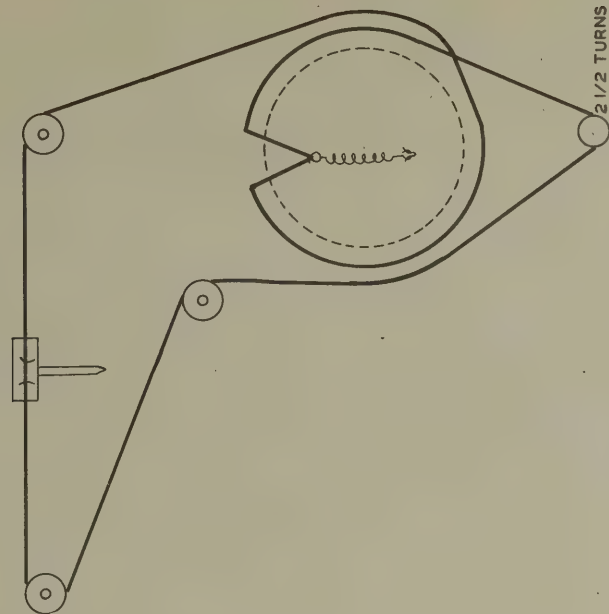
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	OV.	OV.	1.4VDC	-0.7VDC	1.4VDC	89VDC	6.2VAC	247VDC
2	6SA7GT	OV.	OV.	247VDC	77VDC	-4.1VDC	OV.	6.2VAC	35VDC
3	6SK7GT	OV.	OV.	6.6VDC	-35VDC	6.6VDC	128VDC	6.2VAC	247VDC
4	6SQ7GT	OV.	-8VDC	OV.	-35VDC	-15VDC	103VDC	6.2VAC	OV.
5	6K6GT	OV.	OV.	285VDC	247VDC	OV.	175VDC	6.2VAC	19VDC
6	5Y3GT	298VDC	298VDC	OV.	290VAC	OV.	290VAC	OV.	298VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0Ω	0Ω	150Ω	16MEG.	150Ω	160KΩ	1Ω	56KΩ
2	6SA7GT	0Ω	0Ω	56KΩ	80KΩ	215KΩ	.5Ω	1Ω	1.4MEG.
3	6SK7GT	0Ω	0Ω	900Ω	1.4MEG.	900Ω	160KΩ	1Ω	56KΩ
4	6SQ7GT	0Ω	11MEG.	0Ω	1.4MEG.	520KΩ	500KΩ	1Ω	0Ω
5	6K6GT	0Ω	0Ω	56KΩ	56KΩ	500KΩ	250KΩ	1Ω	490Ω
6	5Y3GT	56KΩ	56KΩ	INF.	210Ω	INF.	220Ω	INF.	56KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of +10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE

PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

TUBES

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp. Converter	6SK7GT	6SK7GT	8N	
2	IF Amp.	6SA7GT	6SA7GT	8AD	
3	IF Amp.	6SK7GT	6SK7GT	8N	
4	Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
5	Power Output	6X6GT	6X6GT	7AC	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TRUETONE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7	16	A18-274	M-16-450	UT-16	PRS450-16	Filter
8	450	A18-279	M-16-450	UT-16	PRS450-16	6K6 Plate Bypass
9	.005	A16-153	S-4-005	TC-25	BR1645	Audio Coupling
10	.01	A16-153	S-4-01	TC-11	D74S1	Tone Compensation
11	.01	A16-158	S-4-01	TC-11	D74S1	Audio Plate Decoupling
12	.05	A16-158	S-4-05	TC-15	D74S5	Audio Coupling
13	.01	A16-158	S-4-01	TC-11	D74S1	AVC Filter
14	.05	A16-152	S-4-05	TC-15	D74S5	IF Screen Bypass
15	.05	A16-152	S-4-05	TC-15	D74S5	IF Cath. Bypass
16	.05	A16-152	S-4-05	TC-15	D74S5	RF Screen Bypass
17	.05	A16-152	S-4-05	TC-15	D74S5	RF Cath. Bypass
18	.05	A16-152	S-4-05	TC-15	D74S5	Conv. Screen Bypass
19	.05	A16-152	S-4-05	TC-15	D74S5	AVC Filter
20	.05	A16-152	S-4-05	TC-15	D74S5	Audio Plate Bypass
21	250	A15-176	MO-5-325	1FM-325	SW5125	Osc. Grid Capacitor
22	50	A15-175	MO-5-45	1FM-45	SW5Q5	RF Trans. Fixed Tuned
23	50	A15-175	MO-5-45	1FM-45	SW5Q5	Ant. Coupling
24	200	A16-152	MO-5-32	1FM-32	SW5T2	Output Plate Bypass *
25	.005	A16-153	S-6-005	TC-25	BR1645	

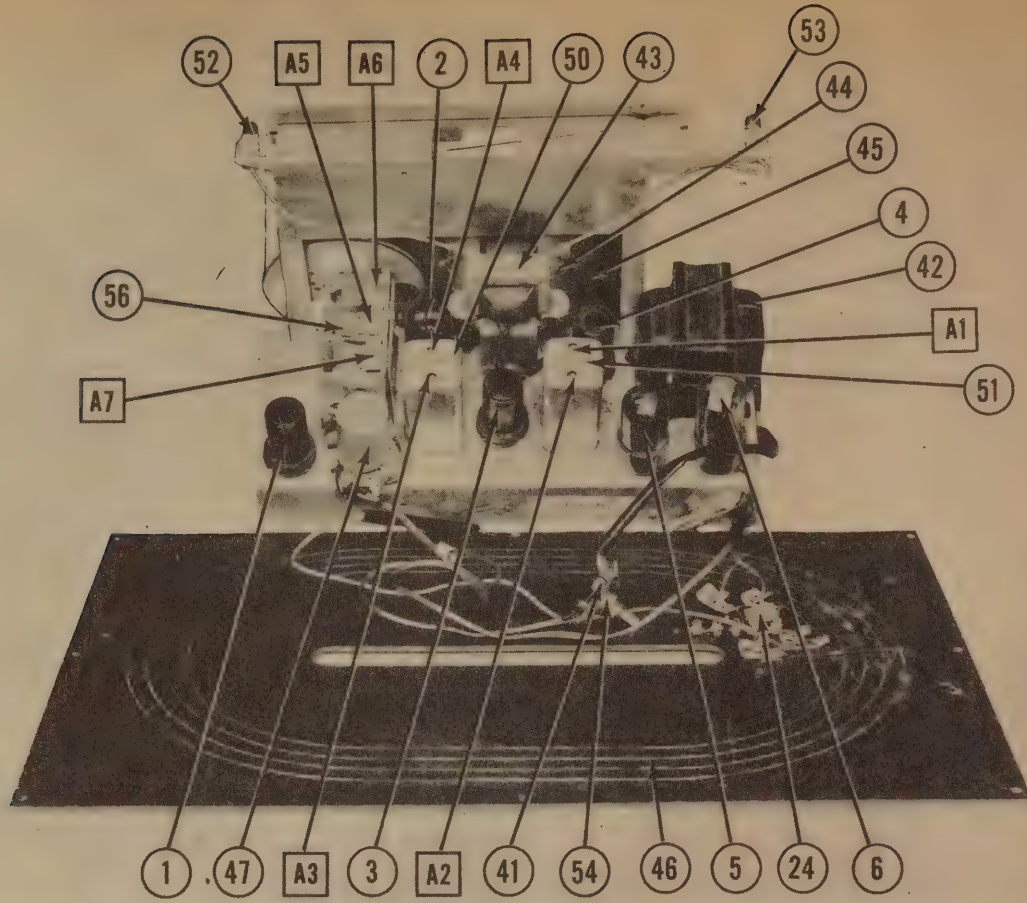
*Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
25A	500KΩ	A24-169	MK401	D13-133	AM-60-Z	Volume Control
B	Start	Not Req.	Not Req.	E	KSS-3	Attach to 25A per instructions
26A	3 Meg.	A26-123	UM165	D13-140	AM-67-Z	Tone Control
B	Start	Not Req.	SS25	E	KSS-3	Attach to 26A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		TRUETONE PART No.	WATTS	IRC PART No.	
27	220KΩ	A60-667	1/3	BTS-220K	Red-Red-Yl. AVC Network
28	100KΩ	A60-671	1/2	BTS-100K	Br.-Blk.-Yl. RF Screen Dropping
29	27KΩ	A60-692	1	BTA-27K	Red-Yl.-Or. Mixer Screen Dropping
30	150Ω	A60-686	1/3	BW-150	Br.-Grn.-Br. RF Cathode
31	22KΩ	A60-689	1/3	BTS-22K	Red-Red-Or. Osc. Grid
32	100KΩ	A60-675	1/3	BTS-100K	Br.-Blk.-Red IF Cathode
33	100KΩ	A60-671	1/3	BTS-100K	Br.-Blk.-Yl. IF Screen Dropping
34	10 Meg.	A60-663	1/3	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
35	220KΩ	A60-667	1/3	BTS-220K	Red-Red-Yl. 1st AF Plate Load
36	200KΩ	A60-682	1/3	BTS-220K	Red-Blk.-Yl. 1st AF Plate Filter
37	500KΩ	A60-682	1/2	BTA-470K	Grn.-Blk.-Yl. Output Grid
38	500Ω	A60-701	1	BTA-470	Grn.-Blk.-Br. Output Cathode
39	82KΩ	A60-700	1	BTA-82K	Gray-Red-Or. Bleeder
40	100KΩ	A-60-689	2	BT-2-1000	Br.-Blk.-Red Filter
41	200KΩ	A60-687	1/2	BTS-220K	Red-Blk.-Yl. Series Phono.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	TRUETONE PART No.	STANCOR PART No.	THORDARSON PART No.	
42	117V AC @ .47A	590V CT @ .059A	4.9V AC @ 1.8A	6.2V AC @ 1.88A	C80-223	P-6119	T-13R20	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI.	SEC.	TRUETONE PART No.	STANCOR PART No.	THORDARSON PART No.	
43	6200Ω	3.5Ω	480Ω	.64Ω	A80-222	A-3823	T22S491	†Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	TRUETONE PART No.	JENSEN PART No.	
44	PM	3.5Ω	B79-341	ST-112	†Alternate speaker assembly
45	CONE DIA.	VC DIA.	B79-342†	Mod. P6-T	
45	6-1/16"	1/2"	NOT READILY	REPLACEABLE—USE COMPLETE SPEAKER UNIT.	

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	
46	Loop Ant.	0Ω	0Ω	S84-56		
47	Ant. Coil	57Ω	4Ω	B10-451		
48	RF Coil	66Ω	2.5Ω	B10-452	14-1027	
49	Osc. Coil		5Ω	A10-446	14-1040	
50	Input IF	17.5Ω	26Ω	B10-412	16-6658	
51	Output IF	18Ω		B10-444	16-6660*	

*From low end of secondary winding add a 250 MMFD cap. to ground, 1 Meg. resistor to second diode, a 50KΩ resistor to high end of volume control.

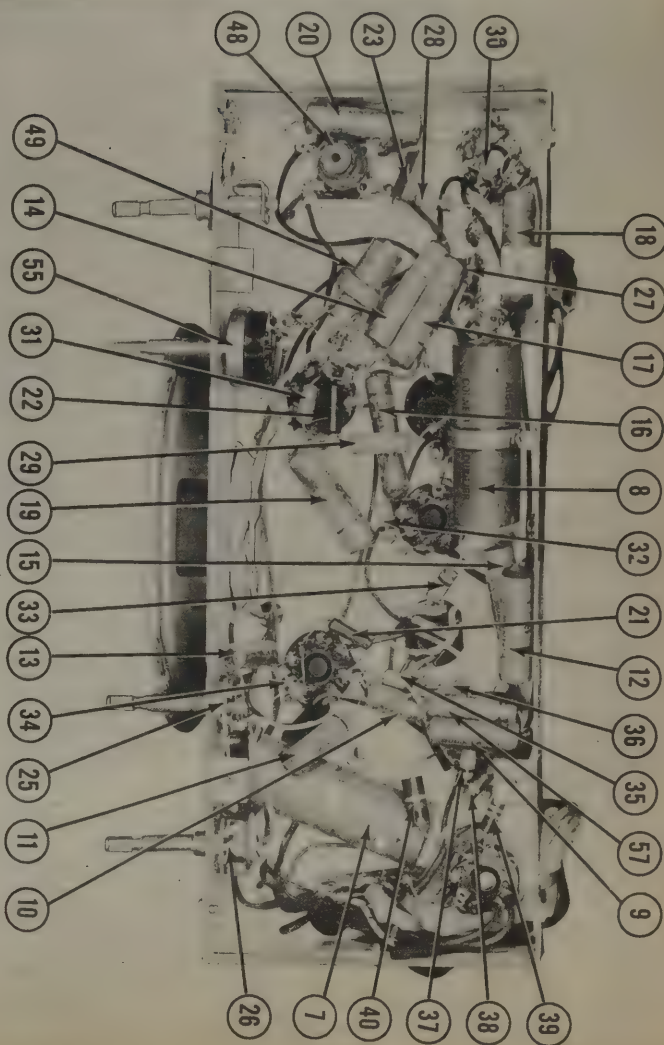
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TRUETONE PART No.		
52	Bayonet	6-8	0.25	Blue			Type 44
53	"	6-8	0.25	"			"

MISCELLANEOUS

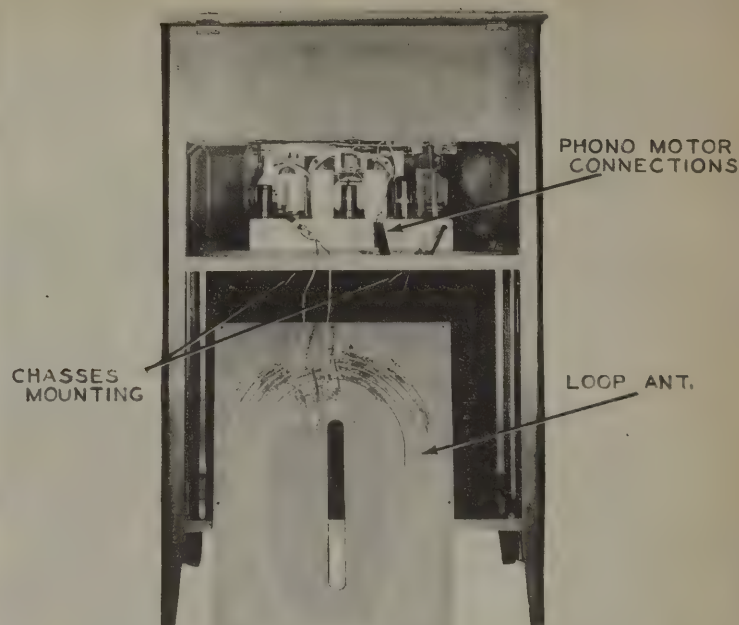
ITEM No.	PART NAME	TRUETONE PART No.	NOTES
54	Switch	A69-172	Radio-Phono
55	"	A69-189	On-off
56	Tuning Cap.	B19-186	3 Gang Variable Cap.
	Dial Scale	C67-494	
	Knob	A52-193	
	"	A52-188	(Phono-Radio)
	Dial Pointer	A53-61	

CHASSIS—BOTTOM VIEW



DISASSEMBLY INSTRUCTIONS

- 1 - Remove the on-off, volume control, tone control, and tuning control push-on type knobs.
- 2 - Remove eight wood screws holding antenna loop to rear of cabinet.
- 3 - Disconnect four leads from loop antenna and remove loop.
- 4 - Remove phono-radio switch push-on type knob. Remove nut holding switch to mounting board and remove switch.
- 5 - Disconnect phono-pickup leads.
- 6 - Disconnect phono-motor leads.
- 7 - Remove the four wood screws and washers holding chassis board to cabinet. Remove chassis board.
- 8 - Remove four hex screws and washers holding chassis to chassis board. Remove chassis.

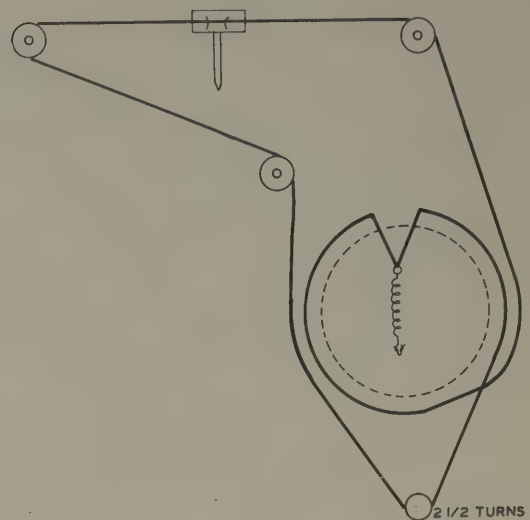


VOLTAGE READINGS								
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0V.	0V.	1.4VDC	-0.7VDC	1.4VDC	6.2VAC	247VDC
2	6SA7GT	0V.	0V.	247VDC	77VDC	-4.1VDC	0V.	35VDC
3	6SK7GT	0V.	0V.	6.6VDC	-3.5VDC	6.6VDC	128VDC	247VDC
4	6SK7GT	0V.	+8V DC	0V.	-3.5VDC	-15VDC	103V DC	6.2VAC
5	6K6GT	0V.	0V.	285VDC	247VDC	0V.	175VDC	6.2VAC
6	3Y3GT	298VDC	298VDC	0V	290VAC	0V.	290VAC	0V.

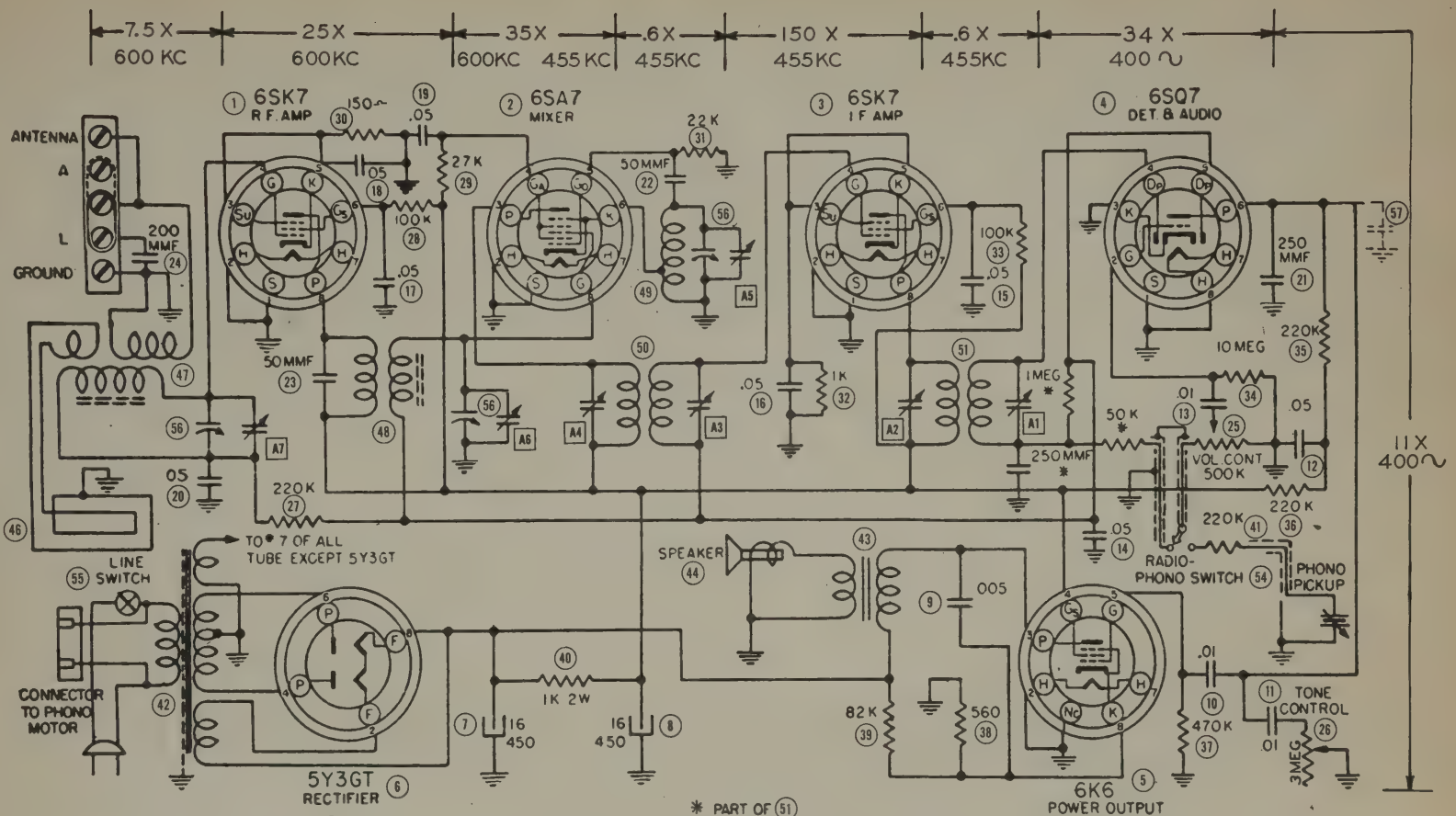
RESISTANCE READINGS									
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0 Ω	0 Ω	150 Ω	1.6 MEG.	150 Ω	160 K Ω	1 Ω	56 K Ω
2	6SA7GT	0 Ω	0 Ω	56 K Ω	80 K Ω	215 K Ω	.5 Ω	1 Ω	1.4 MEG.
3	6SK7GT	0 Ω	0 Ω	900 Ω	1.4 MEG.	900 Ω	160 K Ω	1 Ω	56 K Ω
4	6SQ7GT	0 Ω	11 MEG.	0 Ω	1.4 MEG.	520 K Ω	500 K Ω	1 Ω	0 Ω
5	8K8GT	0 Ω	0 Ω	56 K Ω	56 K Ω	500 K Ω	250 K Ω	1 Ω	490 Ω
6	5Y3GT	56 K Ω	56 K Ω	INF.	210 Ω	INF.	220 Ω	INF.	56 K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE

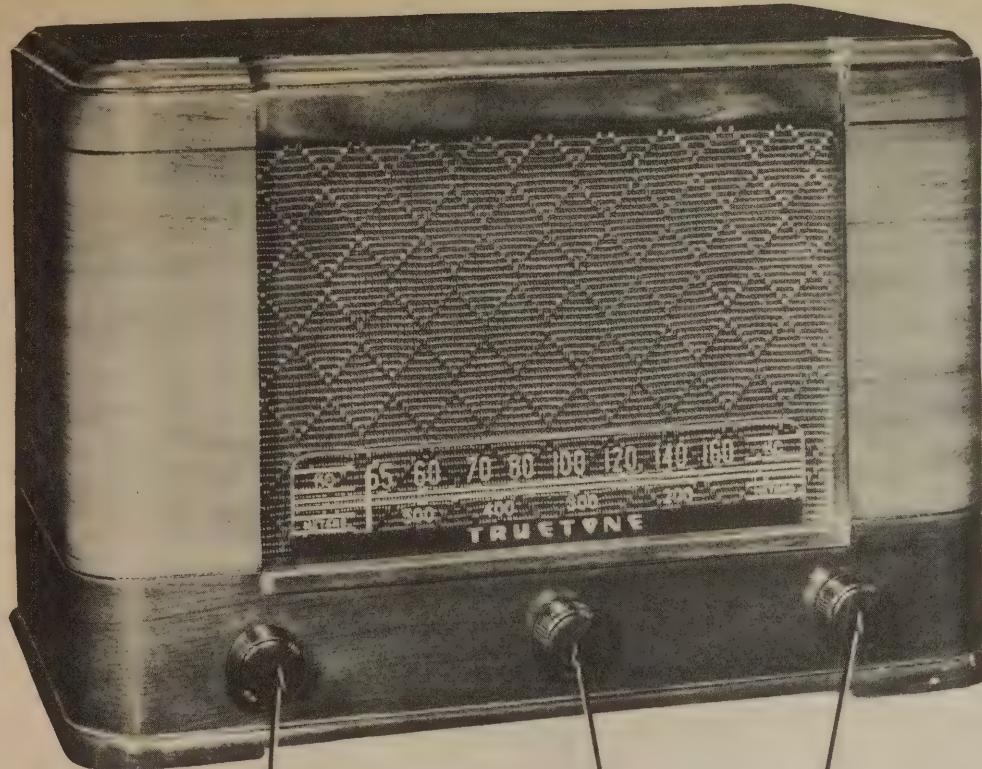

$$IF = 455 \text{ KC}$$

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

472-30

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

TRUETONE
MODEL D 2634



VOLUME CONTROL
ON-OFF SWITCH

PHONO-RADIO-TONE
SWITCH

TUNING CONTROL

TRUETONE
MODEL D 2634

TRUETONE MODEL D-2634

TRADE NAME		Truetone Model D-2634				
SUPPLIER		Western Auto Supply Co., 2107 Grand Ave., Kansas City Mo.				
TYPE SET		AC Operated Superheterodyne Receiver - Self contained Loop Antenna				
TUBES (SIX)		Types 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier				
POWER SUPPLY		110-120 Volts AC		RATING .500 Amp. @ 117 Volts AC		
TUNING RANGE—BROADCAST		535 - 1620 KC				
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Keep chassis and loop in the same relative position as they are in when mounted in the cabinet. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 Mfd	High side to pin #8 (grid) of 6SA7. Low side to chassis.	455KC	High freq. end (Tuning control full clockwise)	Across Voice Coil	A1, A2, A3, A4	Adjust for maximum output.
100 MMF	High side to ant. clip. Low side to chassis.	1620KC	"	"	A5	" " " "
"	"	1400KC	Tune for max. output	"	A6, A7	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det-AVC-AF	6SQ7	6SQ7	8Q	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TRUETONE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	15 CAR.	25688	DY-312	EL-353	AF44J	FP339
B	15				4BS25-25	TP408
C	15				684-005	TP408
8	20				684-005	TP408
9	.005		S-6-005	TC-25	684-005	TP428
10	.005		S-4-005	TC-15	484-005	TP428
11	.005		S-4-005	TC-15	484-005	TP428
12	.01		S-4-01	TC-25	484-01	TP421
13	.005		S-6-005	TC-25	684-005	TP408
14	.005		S-4-01	TC-15	484-01	TP415
15	.005		S-4-01	TC-15	484-01	TP428
16	.05		S-4-05	TC-15	484-05	TP428
17	.05		S-4-05	TC-15	484-05	TP428
18	.05		S-4-05	TC-15	484-05	TP428
19	.05		S-4-05	TC-15	484-05	TP428
20	.01		S-4-01	TC-11	484-01	TP421
21	200		MO.5-32	1FM-32	1468-0002	MC237
22	100		MO.5-31	1FM-31	1468-0001	MC235

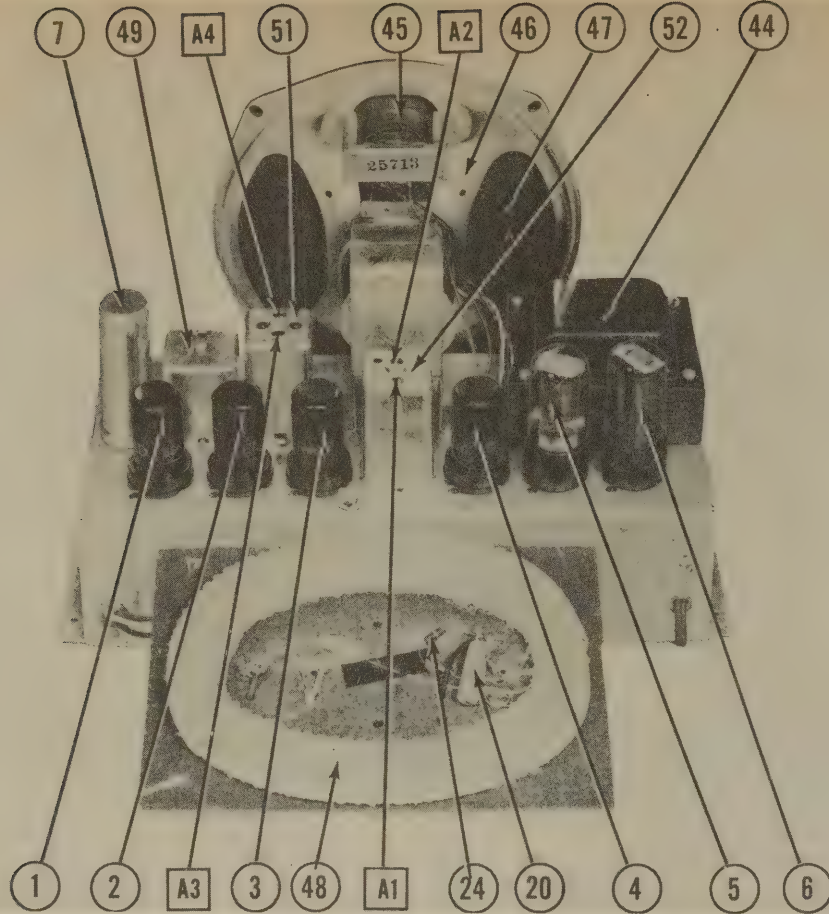
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		TRUETONE PART No.	MALLOY PART No.	CLAROSTAT PART No.	
23A	2.2Meg	25690	TV254	T-115	Volume Control
B	1				Attach to 23A per Instr.
C	Switch		Not Req.	Not Req.	"
			M26	S4-A	"

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		TRUETONE PART No.	IRC PART No.	
24	100K2		BTS-100K	Antenna Loading
25	100K2		BTS-100K	AVC Network
26	4702		BTS-470	RF Cathode
27	100K2		BTS-100K	AVC Network
28	22K2		BTS-22K	Oscillator Grid
29	4702		BW-1-470	IF Cathode
30	22K2		BTS-22K	Screen Dropping
31	1 Meg		BTS-1 Meg	AVC Network
32	470K2		BTS-470K	Diode Load
33	15 Meg		BTS-15 Meg	1st AF Grid
34	220K2		BTS-220K	1st AF Plate Load
35	1 Meg		BTS-1 Meg	Feedback
36	220K2		BTS-220K	Output Grid
37	3002		BW-2-330	Output Cathode
38	2.2 Meg		BTS-2.2Meg	Tone Compensation
39	33K2		BTS-33K	"
40	470K2		BTS-470K	"
41	1 Meg		BTS-1 Meg	Series Phono
42	1 Meg		BTS-1 Meg	Phono Shunt
43	3.32		BW-3-3.3	Series Pilot Light

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued) **TRANSFORMER (POWER)**

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	TRUETONE PART No.	STANCOR PART No.	
44	117VAC 620VCT @ .5 A	5.1VAC @ 1.8A	6.4VAC @ 1.9A	25723	P-61201*	*Drill new mounting holes. † Use universal mounting brackets.

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		TRUETONE PART No.	STANCOR PART No.	
45	3300Ω	3.30	240Ω	25713	A-3823	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		INSTALLATION NOTES
	Field Res.	V.C. Imp.		TRUETONE PART No.	JENSEN PART No.	
46	800Ω	3.3Ω		25712	ST-435† Mod.F8-RS	†Shunt Field Coil with 4000Ω 2Watt Resistor.
47	Cone Dia. 7 5/8"	V.C. Dia. 3/4"		NOT READILY REPLACEABLE UNIT - USE COMPLETE SPEAKER UNIT		

R F COILS

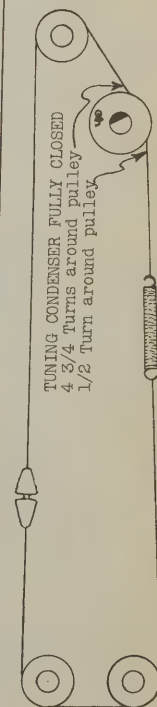
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	
48	Loop Ant.	0Ω	.7Ω	25692		
49	RF Coil	72Ω	6Ω	25697	14-7558	
50	Osc. Coil		6Ω	25724	14-1040	
51	Input IF	28.8Ω	28.5Ω	25715	16-6858	
52	Output IF	32Ω		25714	16-6870	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	TRUETONE PART No.	
53	Bayonet	6-8	0.15	Brown	25576	Type 47
54	Bayonet	6-8	0.15	Brown	25576	Type 47

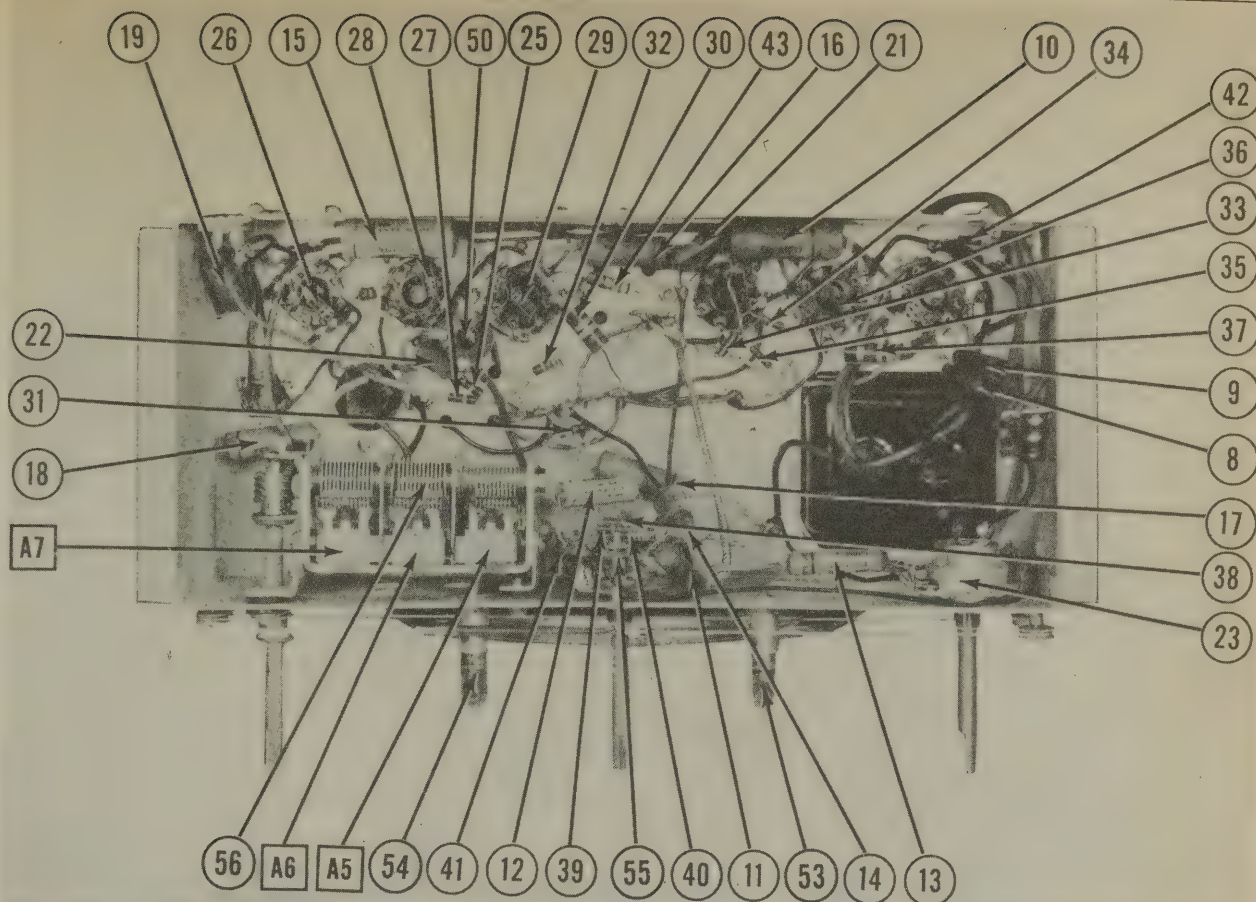
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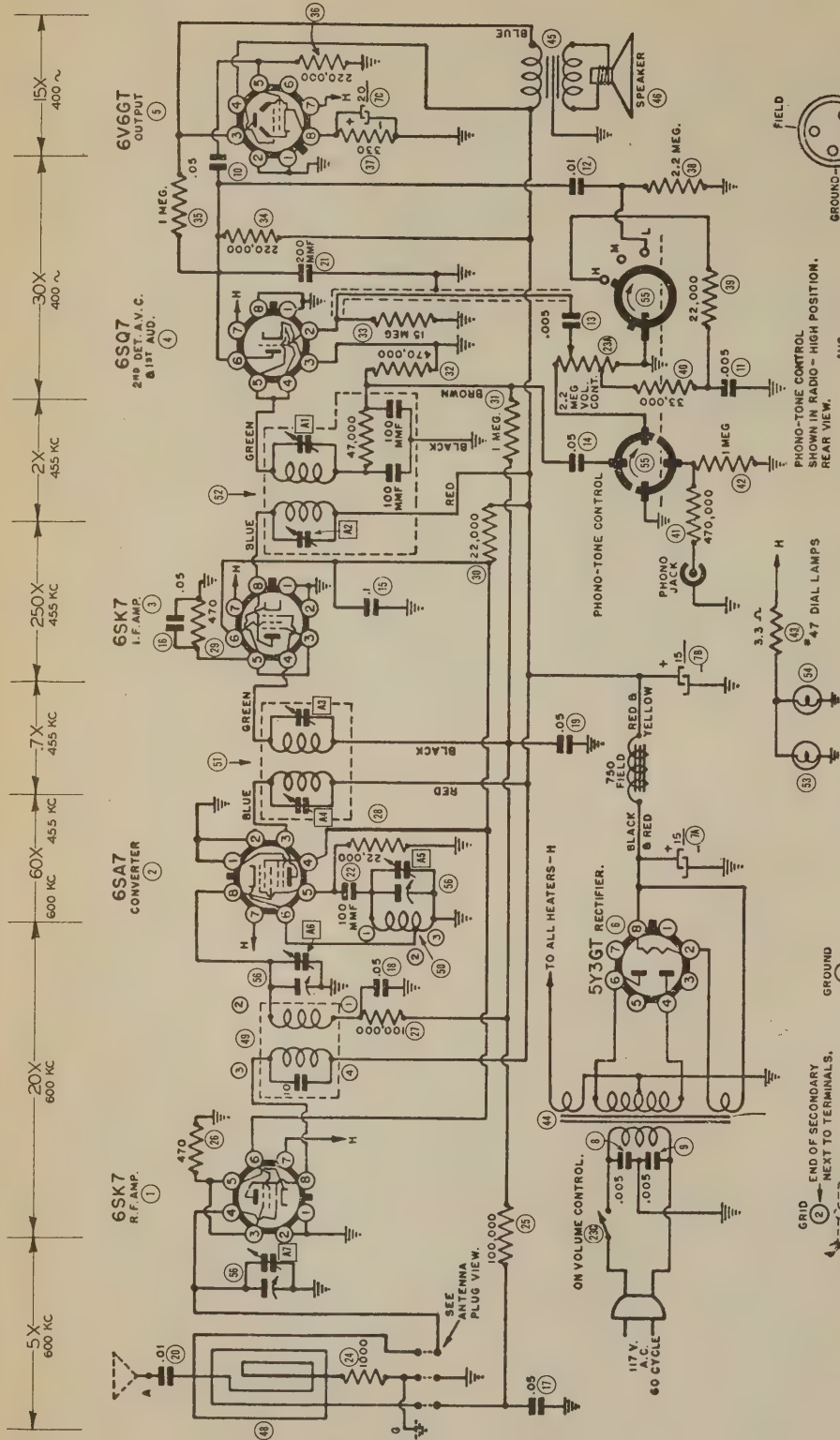
ITEM No.	PART NAME	TRUETONE PART No.	NOTES
55	Radio-Tone Sw.	25562	
56	3-Gang Var. Cap	25592	Trimners Included
	Dial Pointer	25578	



DIAL CORD DRIVE

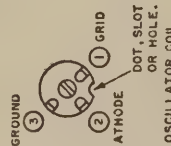
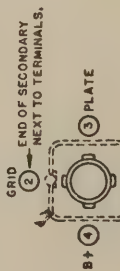
CHASSIS—BOTTOM VIEW





IF = 455 KC

VIEW OF COILS, TERMINAL END



VOLTAGE READINGS*

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	OV.	OV.	OV.	OV.	OV.	3.2VDC	75VDC	6.4VAC 275VDC
2	6SA7	OV.	OV.	OV.	OV.	OV.	2.8VDC	75VDC	6.4VAC 275VDC
3	6SK7	OV.	OV.	OV.	OV.	OV.	2.8VDC	75VDC	6.4VAC 275VDC
4	6V6GT	OV.	OV.	OV.	OV.	OV.	2.8VDC	75VDC	6.4VAC 275VDC
5	5Y3GT	OV.	OV.	OV.	OV.	OV.	2.8VDC	75VDC	6.4VAC 275VDC
6	5Y3GT	OV.	OV.	OV.	OV.	OV.	2.8VDC	75VDC	6.4VAC 275VDC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	0Ω	0Ω	0Ω	0Ω	15 MEG.	400Ω	140KΩ
2	6SA7	0Ω	0Ω	0Ω	0Ω	0Ω	15 MEG.	400Ω	140KΩ
3	6SK7	0Ω	0Ω	0Ω	0Ω	0Ω	15 MEG.	400Ω	140KΩ
4	6V6GT	0Ω	0Ω	0Ω	0Ω	0Ω	15 MEG.	400Ω	140KΩ
5	5Y3GT	0Ω	0Ω	0Ω	0Ω	0Ω	15 MEG.	400Ω	140KΩ
6	5Y3GT	0Ω	0Ω	0Ω	0Ω	0Ω	15 MEG.	400Ω	140KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-31

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line tolerance maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

VIEW LOOKING AT PIN END OF PLUG ON SPEAKER. (ON CONSOLE ONLY.)



VIEW LOOKING AT PIN END OF ANTENNA PLUG



PHONO-TONE CONTROL SHOWN IN RADIO-HIGH POSITION, REAR VIEW.

PHONO-TONE CONTROL SHOWN IN RADIO-HIGH POSITION, REAR VIEW.

PHONO-TONE CONTROL SHOWN IN RADIO-HIGH POSITION, REAR VIEW.

PHONO-TONE CONTROL SHOWN IN RADIO-HIGH POSITION, REAR VIEW.

PHONO-TONE CONTROL SHOWN IN RADIO-HIGH POSITION, REAR VIEW.

PHONO-TONE CONTROL SHOWN IN RADIO-HIGH POSITION, REAR VIEW.

PHONO-TONE CONTROL SHOWN IN RADIO-HIGH POSITION, REAR VIEW.

PHONO-TONE CONTROL SHOWN IN RADIO-HIGH POSITION, REAR VIEW.

PHONO-TONE CONTROL SHOWN IN RADIO-HIGH POSITION, REAR VIEW.

PHONO-TONE CONTROL SHOWN IN RADIO-HIGH POSITION, REAR VIEW.

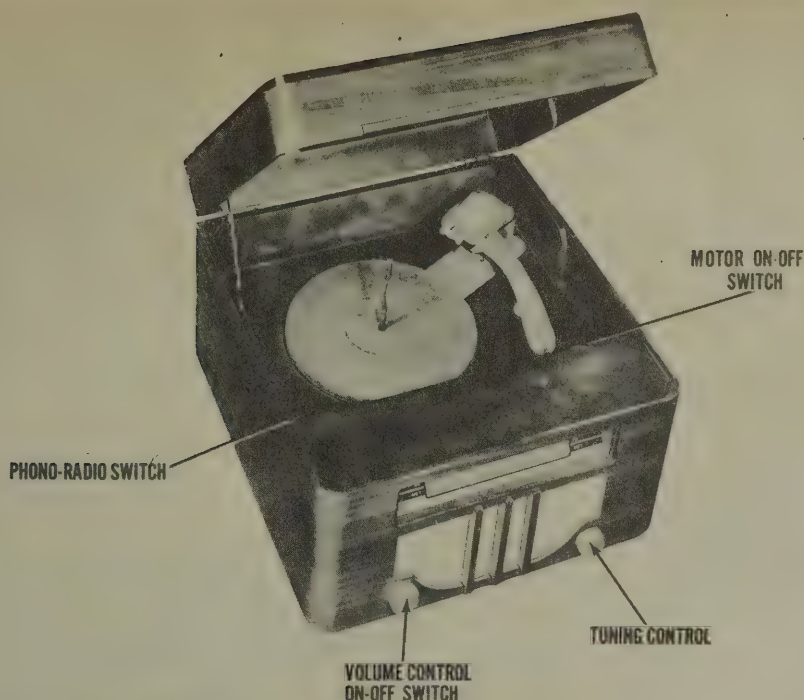
PHONO-TONE CONTROL SHOWN IN RADIO-HIGH POSITION, REAR VIEW.

PHONO-TONE CONTROL SHOWN IN RADIO-HIGH POSITION, REAR VIEW.

PHONO-TONE CONTROL SHOWN IN RADIO-HIGH POSITION, REAR VIEW.

PHONO-TONE CONTROL SHOWN IN RADIO-HIGH POSITION, REAR VIEW.

PHONO-TONE CONTROL SHOWN IN RADIO-HIGH POSITION, REAR VIEW.



TRUETONE MODEL D2642

TRADE NAME	Truetone, Model D2642		
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.		
TYPE SET	AC Operated Automatic Phono - Superheterodyne Receiver - Self Contained Loop Ant.		
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.		
POWER SUPPLY	110-120 Volts AC		
TUNING RANGE—BROADCAST	540-1630KC	RATING	.250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. To adjust pointer, set variable fully closed and set pointer to last hole in dial backplate. See dial cord sketch for details. Volume control should be at maximum, output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
250MMFD	High side to stat- tor of rear sec- tion of variable. Low side to B-.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
250MMFD	"	1630KC	"	"	A5.	" " " "
	Loop	1400KC	Tune for maxi- mum output.	"	A6	Place set in cabinet and radi- ate signal with few turns of wire. Adjust for maximum out- put.

DISASSEMBLY INSTRUCTIONS

1. Remove the push-on type control knobs.
2. Disconnect the phono-on-off switch and the phono-radio switch plug from the end of chassis.
3. Unsolder ground lead from lug on phono-motor.
4. Remove two wood screws and spacers holding loop antenna to cabinet. Remove loop from cabinet.
5. Remove four Phillips head screws holding chassis board to cabinet. Remove chassis and chassis board from cabinet.
6. Remove four hex head screws holding chassis to chassis board. Remove chassis.

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PARTS LIST AND DESCRIPTIONS
TUBES

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	BR	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TRUETONE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
6A	150	67A8	DSB-403020-150	TA-330	PRSA150-40	TP129
6B	30				PRSA150-20	EZ42215
6C	150				UT-201	BRD3515
6A	80	67A3	M-5030-150	TA-630	PRSA150-40	2N520
7	.05	64B1-22	S-4-05	TC-15	484-05	TP428
8	.2	64A2-1	S-4-2	TC-2	484-2	TP429
9	.02	64B1-24	S-4-02	TC-12	484-02	TP423
10	.01	64B1-25	S-4-01	TC-11	484-01	TP421
11	.01	64B1-25	S-4-01	TC-11	484-01	TP421
12	.01	64B1-25	S-4-01	TC-11	484-01	TP421
13	.01	64B1-25	S-4-01	TC-11	484-01	TP421
14	.2	64A2-1	S-4-2	TC-2	484-2	TP423
15	.02	64B1-24	S-4-02	TC-12	484-02	TP423
16	.1	64B1-30	S-4-1	TC-1	484-1	TP428
17	.005	64B1-12	S-6-005	TC-25	684-005	TP408
18	500	65E7-27	M0.5-35	1M-35	1468-0005	MC245
19	250	65E7-22	M0.5-325	1M-325	1468-00025	MC240
20	50	65E7-11	M0.5-45	1M-45	1468-00005	MC245
21	20	65E5-5	M0.5-25	MS-42	1468-000025	MC220

† Used in earlier models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22A	500KΩ	75B3-2	DTM283	D19-133X	AT-92	Volume Control
22B	500KΩ	Not Req.	SS26	E	KSS-3	Attach to 22A per instructions
22C	Switch			41	SW-4	" " " "

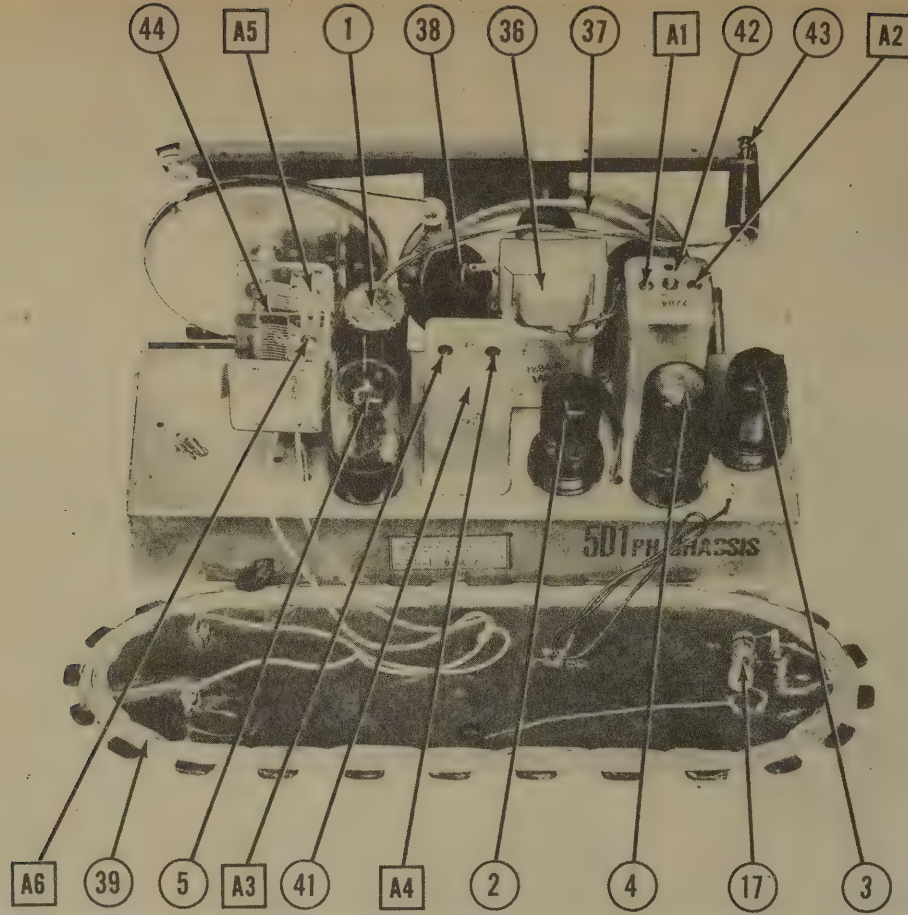
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		TRUETONE PART No.	IRC PART No.	
23	22KΩ	60B8-223	BTS-22K	Red-Red-Or. Oscillator Grid
24	1 Meg.	60B8-105	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
25	47KΩ	60B8-473	BTS-47K	Yl.-Yl.-Or. Tone Compensation
26	27KΩ	60B8-273	BTS-27K	Red-Vl.-Or. Tone Compensation
27	10 Meg.	60B8-103	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
28	220KΩ	60B8-224	BTS-220K	Red-Red-Yl. 1st AF Plate Load
29	470KΩ	60B8-474	BTS-470K	Yl.-Yl.-Yl. Output Grid
30	150Ω	60B8-151	BW-150	Br.-Grn.-Br. Output Cathode
31	150Ω	60B8-154	BTS-150K	Br.-Grn.-Yl. Line Isolation
32	100KΩ	60B28-1	BW-1-100	Br.-Grn.-Br. Filter - See Note 1
33	100KΩ	60B28-3	BW-1-100	Or.-Blk.-Red Filter - See Note 1
34	33Ω	60B28-3	BW-1-33	Or.-Or.-Blk. Surge Limiter - See Note 1

Note 1 - Used on later production only.

FILTER CHOKE

ITEM No.	TOTAL DIRECT CURRENT RESISTANCE	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
			INDUCTANCE (0 CURRENT 1000-c)	THORNDARSON PART NO.	
35	.087A	319Ω	3.6 Henries	C-1711	† Used in earlier production only.



PARTS LIST AND DESCRIPTIONS (Continued) **TRANSFORMER (OUTPUT)**

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	TRUETONE PART No.	THORDARN PART No.	
36A	2700Ω 3.1Ω	175Ω .6Ω	A-3876*	T22845*	*Bend mounting tabs down file out slots and mount on original bracket.
B	2700Ω 3.1Ω	175Ω .6Ω	Part Of 78B13-1	T22845*	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	TRUETONE PART No.	JENSEN PART No.	
37A	PN	3.1Ω	78B4-4	ST-106	
B	PN	3.1Ω	78B13-1	Mod. PS-W	
				Mod. PS-V	Alternate Speaker
39A	COIL DIA.	VC DIA.			
B	4-9/16"	1/2"			
	4-3/4"	1/2"			NOT READILY REPLACEMENT-USE COMPLETE SPEAKER UNIT.

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	
39	Loop Ant.	0Ω	1.3Ω	69B6		
40	Osc. Coil	4.5Ω	69A5		14-1040	
41	Input If	18Ω	72B3		16-6658	
42	Output If	21Ω	22B4		16-6660	

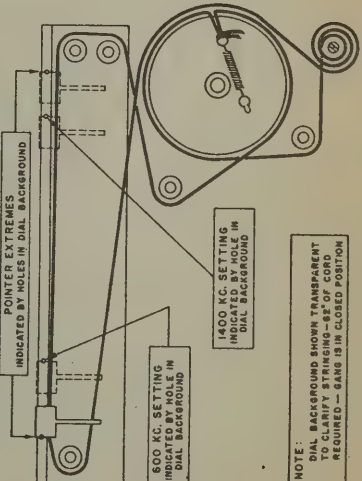
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	TRUETONE PART No.	
43	Bayonet	6-8	0.15	Brown	81A1-8	Type #47

MISCELLANEOUS

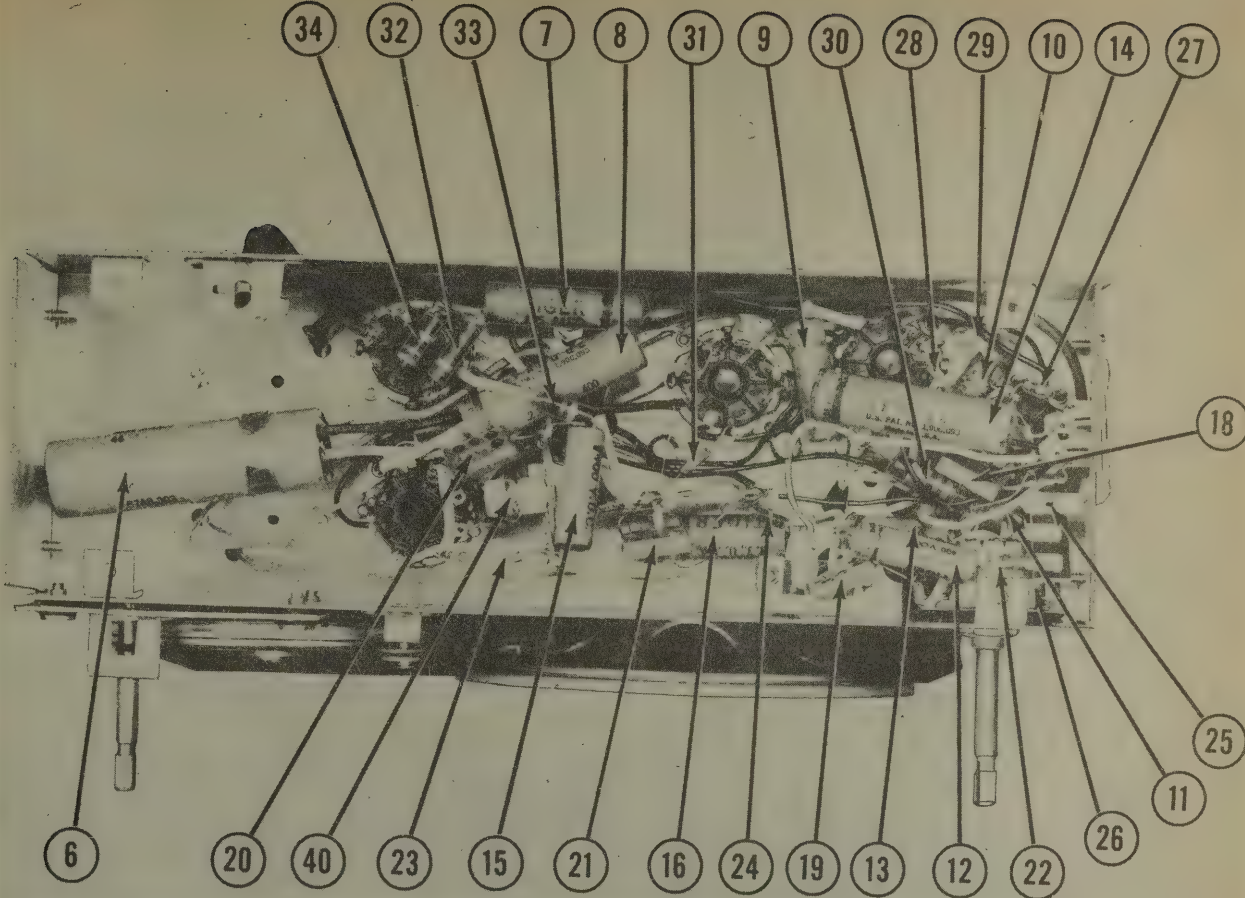
ITEM No.	PART NAME	TRUETONE PART No.	NOTES
44	2 Gang Var. Cap. Crystal Unit. Photo. Motor. Dial Scale Switch	60A2 409A1 40B5 23A13-1 21B27-1 77B1-11 77B1-44	Includes Osc. & Ant. Trimmers Also Motors 40B1, 40B2 are used SPDT (Radio-Phono) SPST (Motor on-off)

DIAL STRINGING AND POINTER SETTINGS



NOTE:
DIAL BACKGROUND SHOWN TRANSPARENT TO CLARIFY STRINGING-60" OF CORD REQUIRED-60" IS IN CLOSED POSITION

CHASSIS—BOTTOM VIEW

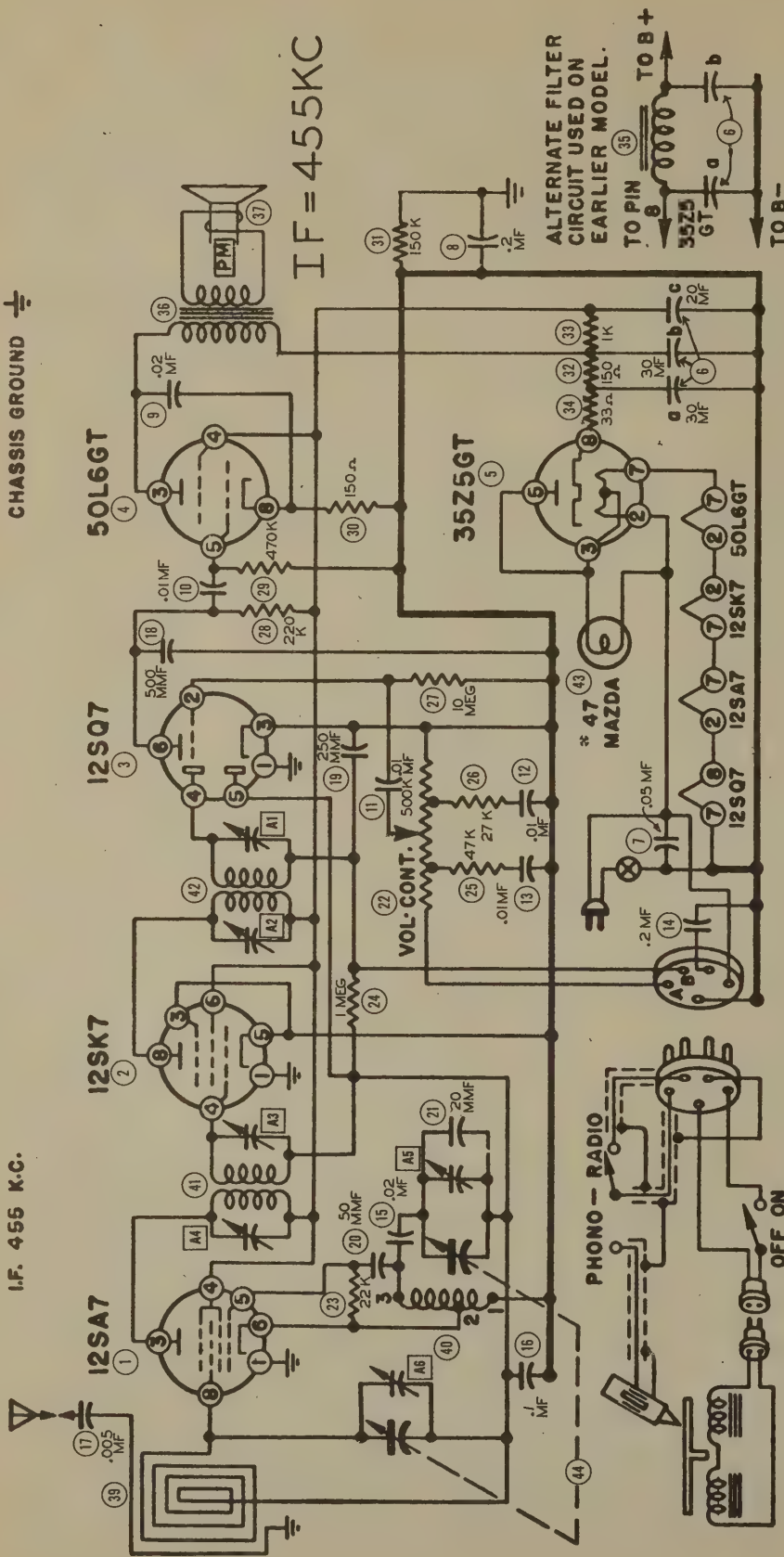




I.F. 455 K.C.

CHASSIS GROUND

IF = 455 KC



NOTE: Connect points "A" and "B" with jumper when testing chassis with phono plug removed.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	OV.	12 VAC	80VDC	80VDC	-75VDC	OV.	24VAC	-75VDC
2	12SK7	OV.	38VAC	OV.	-75VDC	OV.	80VDC	24 VAC	80VDC
3	12SQ7	OV.	-65VDC	OV.	-75VDC	+2 VDC	60 VDC	OV.	12 VAC
4	50L6GT	OV.	38VAC	106VDC	80VDC	OV.	90VAC	OV.	5VDC
5	35Z5GT	OV.	117 VAC	113VAC	115VDC	106VDC	90VAC	OV.	117 VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	128K Ω	15 Ω	600K Ω	600K Ω	22 K Ω	5 Ω	26 Ω	1.3MEG.
2	12SK7	128K Ω	37 Ω	0 Ω	1.3MEG.	0 Ω	600K Ω	26 Ω	600K Ω
3	12SQ7	128K Ω	8 MEG.	0 Ω	1.7 MEG.	350K Ω	1 MEG.	0 Ω	15 Ω
4	50L6GT	128K Ω	37 Ω	600K Ω	600K Ω	420K Ω	INF.	78 Ω	134 Ω
5	35Z5GT	INF.	100 Ω	84 Ω	600K Ω	84 Ω	600K Ω	78 Ω	600K Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

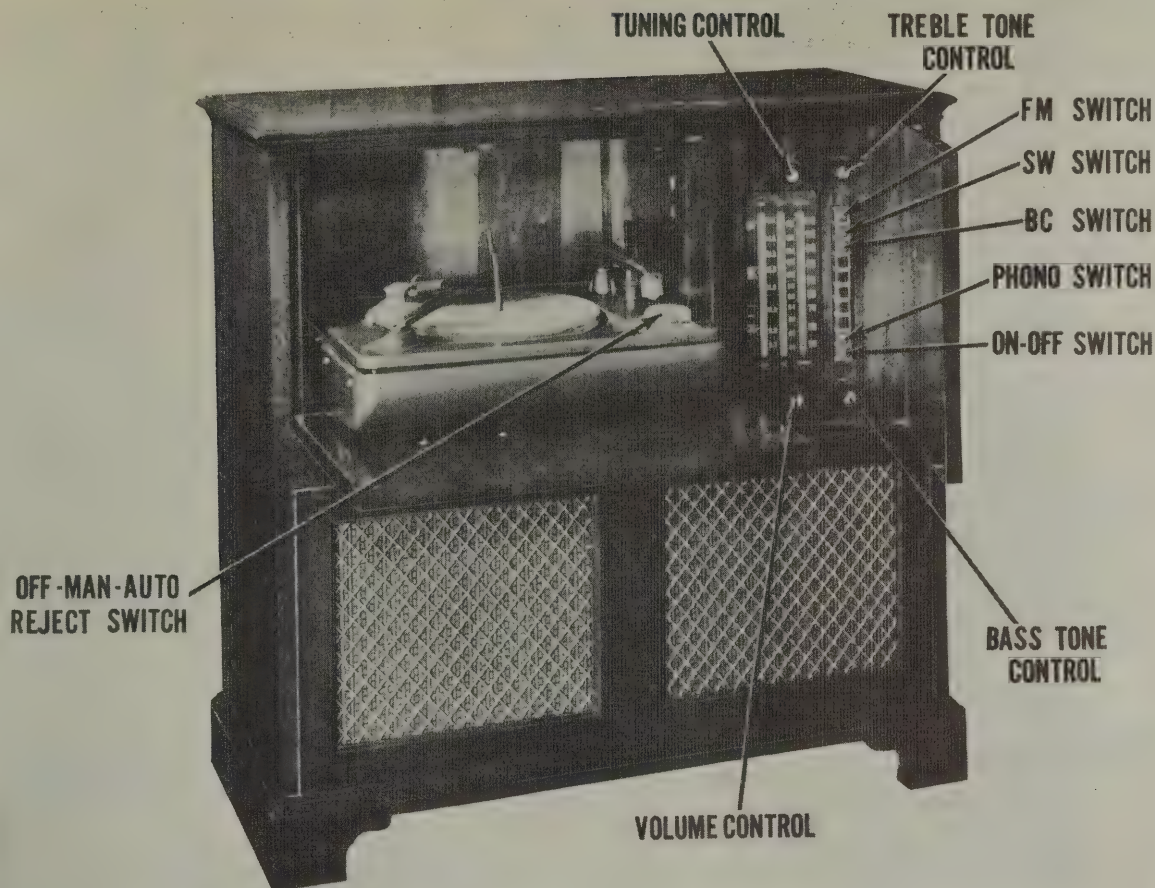
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-32

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

**PHILCO
MODEL 46-1213**



**PHILCO
MODEL 46-1213
PAGE 1**

PHILCO MODEL 46-1213

TRADE NAME	Philco, Model 46-1213
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC Operated 3-Band Superheterodyne Receiver for AM & FM Reception with Automatic Phonograph, Pushbutton Tuning & Self Contained Loop Antenna
TUBES(ELEVEN)	Types, 7W7 FM Amp.(RF), 7F8 Converter, 7H7 1st IF Amp., 7B7 2nd IF Amp., 7H7 3rd IF Amp., 6SQ7GT AM DET.-AVC-AF, 7AF7 Phono Amp.-Phase Inverter, FM1000 FM Det., (2) 6V6GT Power Output, 5U4G Rectifier.
POWER SUPPLY	105-120 Volts AC
RATING	1.04 Amp. @ 117 Volts AC
FREQUENCY RANGES	- STANDARD BROADCAST 540-1720KC SHORT WAVE 9.3-15.5MC FM 88-108MC

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		BAA BASE TYPE	INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
1	FM Amp. (RF)	7M7	7M7	8BJ	
2	Converter	7F8	7F8	8BW	
3	1st IF	7H7	7H7	8V	
4	2nd IF	7B7	7B7	8V	
5	3rd IF	7H7	7H7	8V	
6	AM Det.-AVC-AF	6S07GT	6S07GT	8AC	
7	Phono. Amp.-Ph. Inv	7A7F	7A7F	8AC	
8	FM Det. Amp.	FM 1000	FM 1000	7AC	
9	Power Output	6V6GT	6V6GT	7AC	
10	Rectifier	6V6GT	6V6GT	5T	
11		504G	504G		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PHILCO PART No.	SOLAR PART No.	SPRAGUE PART No.	CORNEILL-DUBILIER PART No.	
12	15	30-2568-1	DY-20-450	EL-15	FP143	Filter
13A	30	30-2570-1	DY-403	AF3J	FP429+	Filter
14	10			AF444J		"
15	450			PR5450-10		"
16A	10	3903-00G	DY-2x10-450	EL-210	FP231	"
16	.01		S-6-01	TC-11	TP410	Line Filter
17	.003	61-0117	S-6-01	TC-11	TP410	"
18	.01	600 61-0133	S-4-05	TC-23	TP432	RF Filter
19	.003	600 61-0120	S-6-01	TC-5	TP410	Bias Filter
20	.006	600 61-0117	S-6-003	TC-11	TP410	Tone Compensation *
21	.003	600 45-3500-7	S-6-008	TC-23	TP408	Output Plate Bypass
22	.01	600 61-0113	S-6-1	TC-1	TP409	Audio Coupling
23	.001	600 61-0120	S-6-01	TC-11	TP418	7AF7 Plate Decoupling
24	.006	600 45-3500-5	S-6-001	TC-21	TP410	Audio Coupling
25	.003	600 45-3500-7	S-6-008	TC-26	TP409	"
26	.01	600 61-0120	S-6-01	TC-11	TP410	Tone Compensation
27	.02	600 61-0108	S-6-02	TC-12	TP412	Audio Coupling
28	.006	600 45-3500-7	S-6-006	TC-26	TP409	Tone Compensation
29	.01	600 61-0120	S-6-01	TC-11	TP410	RF Bypass Pwr. Supp.
30	.03	600 45-3500-1	S-6-03	TC-13	TP413	Audio Coupling
31	.01	600 61-0120	S-6-01	TC-11	TP410	FM Det. Screen Bypass
32	.01	600 61-0120	S-6-01	TC-11	TP409	FM Det. Fil. Bypass
33	.006	600 45-3500-7	S-6-006	TC-26	TP408	Audio Coupling
34	.01	600 61-0120	S-6-01	TC-11	TP410	3rd IF Screen Bypass
35	.01	600 61-0120	S-6-01	TC-11	TP410	3rd IF Cath. Decoupling
36	.01	600 61-0120	S-6-01	TC-11	TP410	3rd IF Cath. Bypass
37	.01	600 61-0120	S-6-01	TC-11	TP410	AVC Filter
38	.05	600 61-0122	S-6-05	TC-15	TP410	RF Bypass Pwr. Supp.
39	.01	600 61-0120	S-6-01	TC-11	TP410	2nd IF Screen Bypass
40	.01	600 61-0120	S-6-01	TC-11	TP410	2nd IF Fil. Bypass
41	.01	600 61-0120	S-6-01	TC-11	TP410	2nd IF Cath. Bypass
42	.01	600 61-0122	S-6-01	TC-11	TP410	AVC Filter
43	.01	600 61-0122	S-6-01	TC-11	TP410	2nd IF Cath. Bypass
44	.01	600 61-0122	S-6-01	TC-11	TP410	IF Plate Decoupling
45	.01	600 61-0122	S-6-01	TC-11	TP410	1st IF Screen Bypass
46	.01	600 61-0122	S-6-01	TC-11	TP410	1st IF Fil. Bypass
47	.01	600 61-0122	S-6-01	TC-11	TP410	Wave Trap
48	.01	600 61-0122	S-6-01	TC-11	TP410	Conv. Plate Decoupling
49	240	600 61-0245307	MO.5-325	LFM-325	MC240	Audio Plate Bypass
50	100	600 61-0105407	MO.5-31	LFM-31	MC235	Tone Compensation
51	1500	600 61-0105407	MO.5-215	LFM-215	MC455	FM Det. Plate Bypass
52	52	600 61-0105407	MO.5-215	LFM-215	MC455	FM Det. Osc. Grid
53	240	600 61-0245307	MO.5-325	LFM-325	MC240	RF AVC Coupling
54	100	600 61-0105407	MO.5-31	LFM-31	MC235	FM Bypass Diode
55	100	600 61-0105407	MO.5-31	LFM-31	MC235	Cath. Coupling
56	750	600 61-0105407	MO.5-31	LFM-31	MC235	Osc. Grid Capacitor
57	100	600 61-0105407	MO.5-31	LFM-31	MC235	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PHILCO PART No.	SOLAR PART No.	SPRAGUE PART No.	CORNEILL-DUBILIER PART No.	
58	240	6010245307	MO.5-325	LFM-325	MC240	Conv. Plate Bypass
59	240	6010245307	MO.5-325	LFM-325	MC240	RF Bypass Pwr. Supp.
60	510	6010515307	MO.5-325	LFM-35	MC245	Osc. Feedback AM
61	240	6010245307	MO.5-325	LFM-325	MC240	RF Coupling
62	510	6010515307	MO.5-325	LFM-35	MC245	RF Plate Decoupling
63	510	6010515307	MO.5-325	LFM-35	MC245	RF Screen Bypass
64	240	6010245307	MO.5-325	LFM-325	MC240	RF Filament Bypass
65	240	6010245307	MO.5-325	LFM-325	MC240	RF Coupling
66	485	601220-23	MO.5-325	LFM-325	MC240	Osc. Feedback PB
67	285	30-1220-9	MO.5-33	MS-33	MC241	Fixed Padder
68	300	30-1220-10	MO.5-33	MS-33	MC240	"
69	255	6010255237	MO.5-325	LFM-325	MC225	RF Coupling
70	47	6000515307	MO.5-45	LFM-45	MC215	"
71	10	6000105407	MO.5-41	MS-41	MC215	"

* Not used in all models.

† Wind same number of turns of wire on replacements as on original.

‡ Do not use bypass section.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PHILCO PART No.	SOLAR PART No.	SPRAGUE PART No.	CORNEILL-DUBILIER PART No.	
72A	2 Meg.	33-5535-5	MT451	D18-139X	5R5T3	Volume Control.
73A	1 Meg.	Not Req.	Not Req.	A	5R5T5	Attach to 72A per instructions
74A	500K	Not Req.	Not Req.	Not Req.	5R5Q5	Bass Control
75A	500K	33-5539-7	MT48	D13-133	5R5Q1	Attach to 73A per instructions
76A	500K	Not Req.	Not Req.	A	5R5Q1	Treble Control
77A	500K	Not Req.	Not Req.	A	5R5Q1	Attach to 74A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		PHILCO PART No.	SOLAR PART No.	SPRAGUE PART No.	CORNEILL-DUBILIER PART No.	
75	10K	66-3103340	MT451	D18-139X	5R5T3	Volume Control.
76	100K	66-1103340	MT451	D18-139X	5R5T3	Attach to 72A per instructions
77	1 Meg.	66-5103340	MT451	D18-139X	5R5T3	Bass Control
78	100K	66-4103340	MT451	D18-139X	5R5T3	Attach to 73A per instructions
79	33K	66-3333340	MT451	D18-139X	5R5T3	Treble Control
80	330K	66-3333340	MT451	D18-139X	5R5T3	Attach to 74A per instructions
81	22K	66-3223340	MT451	D18-139X	5R5T3	
82	22K	66-3223340	MT451	D18-139X	5R5T3	
83	22K	66-3223340	MT451	D18-139X	5R5T3	
84	10K	66-3103340	MT451	D18-139X	5R5T3	
85	220K	66-2223340	MT451	D18-139X	5R5T3	
86	4.7 Meg.	66-5473340	MT451	D18-139X	5R5T3	
87	4.7 Meg.	66-5473340	MT451	D18-139X	5R5T3	
88	47K	66-4733340	MT451	D18-139X	5R5T3	
89	1 Meg.	66-5103340	MT451	D18-139X	5R5T3	
90	100K	66-4103340	MT451	D18-139X	5R5T3	
91	100K	66-4103340	MT451	D18-139X	5R5T3	
92	330K	66-3333340	MT451	D18-139X	5R5T3	
93	1 Meg.	66-5103340	MT451	D18-139X	5R5T3	
94	180K	66-1803340	MT451	D18-139X	5R5T3	
95	330K	66-3333340	MT451	D18-139X	5R5T3	
96	100K	66-4103340	MT451	D18-139X	5R5T3	
97	100K	66-4103340	MT451	D18-139X	5R5T3	
98	100K	66-4103340	MT451	D18-139X	5R5T3	
99	330K	66-3333340	MT451	D18-139X	5R5T3	
100	180K	66-1803340	MT451	D18-139X	5R5T3	
101	100K	66-4103340	MT451	D18-139X	5R5T3	
102	82K	66-8233340	MT451	D18-139X	5R5T3	
103	330K	66-3333340	MT451	D18-139X	5R5T3	
104	47K	66-4733340	MT451	D18-139X	5R5T3	
105	270K	66-2733340	MT451	D18-139X	5R5T3	

PARTS LIST AND DESCRIPTIONS (Continued)

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

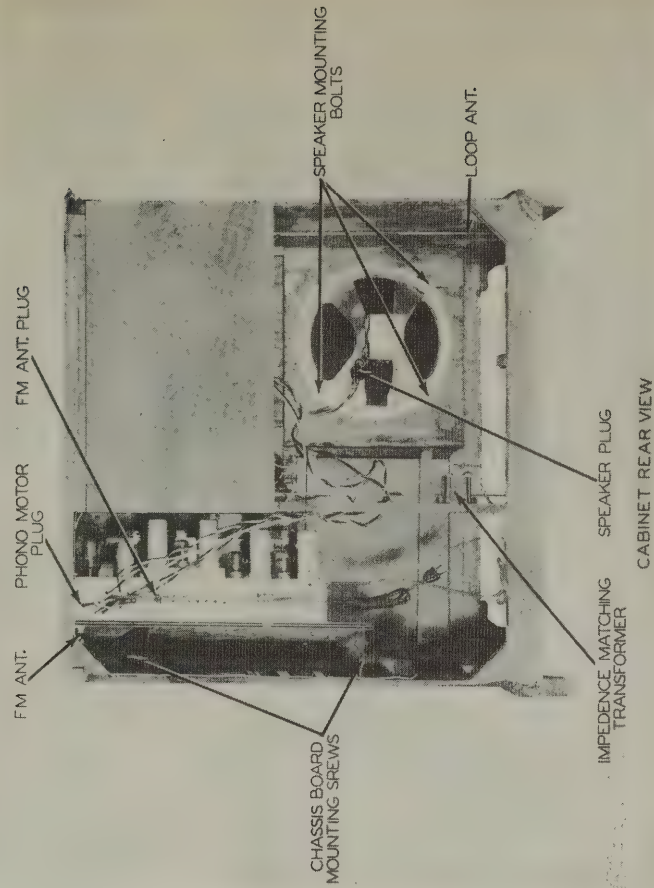
ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		PHILCO PART No.	IRC PART No.	
106	100K Ω	66-4103340	BTS-100K	Br.-Blk.-Yl. Tone Compensations
107	1 Meg.	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
108	15K Ω	66-3153340	BTS-15K	Br.-Grn.-Or. FM Detector Oscillator Grid
109	47K Ω	66-3473340	BTS-47K	Yl.-Yl.-Or. " "
110	100K Ω	66-4103340	BTS-100K	Br.-Blk.-Yl. Tone Dropping
111	15K Ω	66-3153340	BTS-15K	Br.-Grn.-Or. Tone Compensation
112	56K Ω	66-3563340	BTS-56K	Grn.-Blue-Or. Voltage Dropping
113	33K Ω	66-3333340	BTS-33K	Or.-Or.-Or. FM Detector Screen Dropping
114	4.7 Ω	66-9473340	BTS-4.7	Yl.-Yl.-Gold Feedback
115	1.5K Ω	66-3153340	BTS-1.5K	

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
144	Loop		02	76-2282		
145	EC Ant. Coil		1.5 Ω	32-4049-1		
146	SW Ant. Coil		02	32-4050-2		
147	FM " "		02	32-3993		
148	FM Conv. Grid		02	32-3992		
149	EC Osc. Coil		32	32-4019-1	14-1040	
150	SW Osc. " "		02	32-3896		
151	FM " "		02	32-3894		
152	1st 455KC IF	1 Ω	21 Ω	32-4020-1		

DISASSEMBLY INSTRUCTIONS

1. Remove the push-on type control knobs from dial panel of receiver.
2. Disconnect the phono-pickup plug from the matching transformer.
3. Disconnect the plug of the matching transformer from the receiver input receptacle.
4. Disconnect brown and white antenna lead plug from chassis.
5. Disconnect loop antenna black and white leads from terminal strip on chassis.
6. Disconnect phono-motor plug from chassis.
7. Pull out dial light and assembly from front of cabinet.
8. Remove the dial light from the bracket which lays on the top innermost side of record changer compartment.
9. Remove mercury switch from clip bracket in record changer compartment.
10. Remove four hex head machine screws holding chassis board to cabinet. Remove chassis board and chassis.
11. Remove five hex head machine bolts holding chassis to chassis board. Remove chassis.
12. Remove loop antenna by removing the Phillips screw, spacers, and washers holding loop to cabinet.
13. Removing two Phillips head screws holding matching transformer to cabinet. Remove transformer.
14. Remove four hex nuts and washers holding speaker to speaker bolts. Remove speaker.



PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RAA BASE TYPE	INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
1	FM Amp. (RF)	7M7	7M7	9BJ	
2	Converter	7H7	7H7	8BW	
3	1st IF	7B7	7B7	8V	
4	2nd IF	7H7	7H7	8V	
5	3rd IF	7H7	7H7	8V	
6	AM Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
7	Phono Amp.-Ph. Inv	7A7F	7A7F	8AC	
8	FM Det.	FM 1000	FM 1000		
9	Power Output	6V6GT	6V6GT	7AC	
10	Power Output	6V6GT	6V6GT	7AC	
11	Rectifier	504G	504G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PHILCO PART No.	SOLAR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
12	15	30-2568-1	EL-15	AF3J	FP143	Filter
13	30	30-2570-1	EL-424	AF444J	FP429+	Filter
14	10	450				"
15	10	450				"
16	10	450				"
17	10	450				"
18	10	450				"
19	10	450				"
20	10	450				"
21	10	450				"
22	10	450				"
23	10	450				"
24	10	450				"
25	10	450				"
26	10	450				"
27	10	450				"
28	10	450				"
29	10	450				"
30	10	450				"
31	10	450				"
32	10	450				"
33	10	450				"
34	10	450				"
35	10	450				"
36	10	450				"
37	10	450				"
38	10	450				"
39	10	450				"
40	10	450				"
41	10	450				"
42	10	450				"
43	10	450				"
44	10	450				"
45	10	450				"
46	10	450				"
47	10	450				"
48	10	450				"
49	10	450				"
50	10	450				"
51	10	450				"
52	10	450				"
53	10	450				"
54	10	450				"
55	10	450				"
56	10	450				"
57	10	450				"

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PHILCO PART No.	SOLAR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
58	240	6010245307	MO.5-325	1468-00025	MS240	Conv. Plate Bypass
59	240	6010245307	MO.5-325	1468-00025	MS240	RF Bypass Pwr. Supp.
60	510	6010515307	MO.5-35	1468-00005	MS245	Osc. Feedback AM
61	240	6010245307	MO.5-325	1468-00025	MS240	RF Coupling
62	510	6010515307	MO.5-35	1468-00005	MS245	RF Plate Decoupling
63	510	6010515307	MO.5-35	1468-00005	MS245	RF Screen Bypass
64	240	6010245307	MO.5-325	1468-00025	MS240	RF Coupling
65	240	6010245307	MO.5-325	1468-00025	MS240	RF Coupling
66	485	500	301220-23			Osc. Feedback PB
67	285	500	301220-9			"
68	300	500	301220-10			Fixed Padder
69	285	500	301220-9			"
70	47	500	6000515307	MO.5-45	MS245	RF Coupling
71	10	500	6000105407	MO.5-41	MS215	"

* Not used in all models.

† Wind same number of turns of wire on replacements as on original.

‡ Do not use bypass section.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
72A	2 Meg. B Shaft	33-5535-5	MT451	D18-139X	T-116	Volume Control.
73A	1 Meg. B Shaft	Not Req.	UN160	A	Not Req.	Attach to 72A per Instructions
74A	500KΩ B Shaft	Not Req.	Not Req.	D13-133	M-80-Z	Attach to 73A per Instructions
75	1 Meg. B Shaft	33-5539-7	MT48	A	Not Req.	Attach to 74A per Instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		PHILCO PART No.	IRC PART No.	
76	10KΩ	66-3103340	BTS-10K	Br.-Blk.-Or. Oscillator Cathode Push Button
77	10KΩ	66-1103340	BM-1-100	Br.-Blk.-Br. Parasitic Suppressor
78	100KΩ	66-5103340	BTS-1 Meg.	Br.-Blk.-3rm. RF Grid Load
79	330KΩ	66-4103340	BTS-33K	Br.-Blk.-Yl. " Screen Dropping
80	330KΩ	66-3333340	BTS-3300	Or.-Or.-Or. " Plate Load
81	22KΩ	66-3223340	BTS-22K	Or.-Or.-Red. Decoupling Grid
82	22KΩ	66-3223340	BTS-22K	Red-Red-Or. Oscillator
83	10KΩ	66-0103340	BM-2-10	Red-Red-Or. " Plate Load
84	10KΩ	66-0103340	BM-2-10	Br.-Blk.-Blk. Parasitic Suppressor
85	2200Ω	66-5473340	BTS-2200	Red-Red-Red Converter Cathode
86	4.7 Meg.	66-5473340	BTS-4.7 Meg.	Yl.-Yl.-Yl. 3rm. AVC Network
87	4.7 Meg.	66-5473340	BTS-4.7K	Yl.-Yl.-Yl. Converter Grid
88	47KΩ	66-5103340	BTS-1 Meg.	Br.-Blk.-Gm. AVC Network
89	100KΩ	66-1103340	BM-1-100	Br.-Gray-Br. 1st IF Cathode
90	100KΩ	66-1103340	BM-1-100	Br.-Blk.-Yl. " Screen Dropping
91	3300Ω	66-2333340	BTS-100K	Or.-Or.-Yl. " Plate Decoupling
92	1 Meg.	66-5103340	BTS-1 Meg.	Br.-Blk.-Gm. AVC Network
93	100KΩ	66-1103340	BM-1-100	Br.-Gray-Br. 2nd IF Cathode
94	100KΩ	66-1103340	BM-1-100	Or.-Or.-Red. " Screen Dropping
95	100KΩ	66-1103340	BM-1-100	Br.-Blk.-Yl. " Plate Decoupling
96	100KΩ	66-1103340	BM-1-100	Or.-Or.-Yl. 3rd IF Cathode
97	100KΩ	66-1103340	BM-1-100	Br.-Gray-Br. 3rd IF Cathode
98	100KΩ	66-1103340	BM-1-100	Br.-Blk.-Yl. " Screen Dropping
99	100KΩ	66-1103340	BM-1-100	Br.-Blk.-Yl. " Plate Decoupling
100	100KΩ	66-1103340	BM-1-100	Br.-Gray-Br. 3rd IF Cathode
101	100KΩ	66-1103340	BM-1-100	Br.-Blk.-Yl. " Screen Dropping
102	82KΩ	66-3323340	BTS-82K	Gray-Red-Or. " Plate Decoupling
103	3300Ω	66-3473340	BTS-3300	Yl.-Yl.-Or. Diode RF Filter
104	47KΩ	66-3473340	BTS-47K	Red-Yl.-Yl. " Load
105	270KΩ	66-4273340	BTS-270K	

and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES		
			PHILCO	SOLAR	SPRAGUE	AEROVOX	CORNELL-DUBILIER	MALLORY			
	CAP.	VOLT	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.			
12	15	450	30-2568-1	DY-20-450	EL-15	AF3-1	UP4AJ18	FP143	Filter ▲ " " " "	Filter ▲ " " " "	
13A	30	450	30-2570-1	DY-403	EL-424	AF444J	UP9DJ53	FP4294			
15	15	450									
16	10	450							Line Filter " " " "	Line Filter " " " "	
14A	10	450	30-2552	DY-2x10-450	EL-210	AF44J	UP1145	FP231			
15A	10	450									
16A	10	450	3903-001	S-6-01	TC-11	684-01	DT6S1	TP410	RF Filter " " " "	RF Filter " " " "	
17	10	450	61-0117	S-6-003	TC-23	684-003	DT6S3	TP432			
18	10	450	61-0133	S-4-5	TC-5	484-5	DT6P5	TP432			
19	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	Tone Compensation * " " " "	Tone Compensation * " " " "	
20	10	450	61-0117	S-6-003	TC-23	684-003	DT6S3	TP432			
21	10	450	45-3500-7	S-6-006	TC-26	684-006	DT6D6	TP409			
22	10	450	61-0113	S-6-1	TC-1	684-1	DT6P1	TP418	7AF7 Plate Decoupling " " " "	7AF7 Plate Decoupling " " " "	
23	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
24	10	450	45-3500-8	S-6-001	TC-21	684-001	DT6D1	TP404			
25	10	450	45-3500-7	S-6-006	TC-26	684-006	DT6D6	TP409	Tone Compensation " " " "	Tone Compensation " " " "	
26	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
27	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
28	10	450	45-3500-7	S-6-006	TC-26	684-006	DT6D6	TP409	Audio Coupling " " " "	Audio Coupling " " " "	
29	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
30	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
31	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	Tone Compensation " " " "	Tone Compensation " " " "	
32	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
33	10	450	45-3500-7	S-6-006	TC-26	684-006	DT6D6	TP409			
34	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	Tone Compensation " " " "	Tone Compensation " " " "	
35	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
36	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
37	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	Tone Compensation " " " "	Tone Compensation " " " "	
38	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
39	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
40	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	Tone Compensation " " " "	Tone Compensation " " " "	
41	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
42	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
43	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	Tone Compensation " " " "	Tone Compensation " " " "	
44	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
45	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
46	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410	Tone Compensation " " " "	Tone Compensation " " " "	
47	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
48	10	450	61-0120	S-6-01	TC-11	684-01	DT6S1	TP410			
49	240	500	6010245307	Mo. 5-325	1FM-325	1468-00025	SW5T25	TP410	Wave Trap † " " " "	Wave Trap † " " " "	
50	100	500	6010138407	Mo. 5-31	1FM-31	1468-0001	SW5T31	TP410			
51	1500	500	6020115404	Mo. 5-215	1FM-215	1468-00015	SW5D15	TP410			
52	47	500	6000515307	Mo. 5-45	1FM-45	1468-00005	SW5Q5	TP410	RF Pass. Diode " " " "	RF Pass. Diode " " " "	
53	240	500	61-0245307	Mo. 5-325	1FM-325	1468-00025	SW5T25	TP410			
54	100	500	6010138407	Mo. 5-31	1FM-31	1468-0001	SW5T31	TP410			
55	1500	500	6010138407	Mo. 5-31	1FM-31	1468-0001	SW5T31	TP410	Catn. Coupling " " " "	Catn. Coupling " " " "	
56	750	500	6010175801	Mo. 3-38	NS-38	1468-00075	SW5T38	TP410			
57	100	500	6010105407	Mo. 5-31	1FM-31	1468-0001	SW5T31	TP410			

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST.	WATTS	PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
72A	1 Meg.	1	33-5535-5	MT451	D18-139X	T-116	Volume Control.
73A	1 Meg.	1	33-5539-8	MT160	A	Not Req.	Attach to 72A per instructions
74A	1 Meg.	1	33-5539-7	MT160	D13-133	M-50-Z	Attach to 73A per instructions
B	Not Req.	Not Req.	Not Req.	Not Req.	A	Not Req.	Treble Control

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
75	10K	1/2	66-3103340	BTS-10K	Br.-Blk.-Gr. Oscillator Cathode Push Button
76	100K	1/2	66-1103340	BW-2-100	Br.-Blk.-Br. Parasitic Suppressor
77	1 Meg.	1/2	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid Load
78	100K	1/2	66-4103340	BTS-100K	Br.-Blk.-Yl. " Screen Dropping
79	33K	1/2	66-3333340	ETA-73K	Or.-Or.-Or. " Plate Load
80	330K	1/2	66-2333340	BTS-330K	Or.-Or.-Red Decoupling
81	22K	1/2	66-2223340	ETA-22K	Red-Red-Or. Oscillator Grid
82	22K	1/2	66-2223340	BTS-22K	Red-Red-Or. " Plate Load
83	22K	1/2	66-2223340	BTS-22K	Red-Red-Or. " " "
84	10K	1/2	66-0113340	BW-2-10	Br.-Blk.-Blk. Parasitic Suppressor
85	220K	1/2	66-2223340	BTS-220K	Red-Red-Red Converter Cathode
86	4.7 Meg.	1/2	66-5473340	BTS-4.7 Meg.	Yl.-Yl.-Grn. AVC Network
87	4.7 Meg.	1/2	66-5473340	BTS-4.7 Meg.	Yl.-Yl.-Grn. Converter Grid
88	47K	1/2	66-3473340	BTS-47K	Yl.-Yl.-Or. " Plate Dropping
89	1 Meg.	1/2	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
90	100K	1/2	66-1103340	BW-2-180	Br.-Gray-Br. 1st IF Cathode
91	100K	1/2	66-4103340	ETA-100K	Br.-Blk.-Yl. " Screen Dropping
92	330K	1/2	66-2333340	BTS-330K	Or.-Or.-Red " Plate Decoupling
93	1 Meg.	1/2	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
94	100K	1/2	66-1103340	BW-2-180	Br.-Gray-Br. 2nd IF Cathode
95	330K	1/2	66-2333340	BTS-330K	Or.-Or.-Red " " "
96	100K	1/2	66-4103340	ETA-100K	Br.-Blk.-Yl. " Screen Dropping
97	330K	1/2	66-2333340	BTS-330K	Or.-Or.-Red " Plate Decoupling
98	100K	1/2	66-4103340	BTS-100K	Br.-Blk.-Yl. Bleeder
99	330K	1/2	66-4333340	BTS-330K	Or.-Or.-Yl. AVC Network
100	100K	1/2	66-1103340	BW-2-100	Br.-Gray-Br. 3rd IF Cathode
101	100K	1/2	66-1103340	BW-2-100	Br.-Blk.-Br. " " "
102	82K	1/2	66-3623340	ETA-82K	Gray-Red-Or. " Screen Dropping
103	330K	1/2	66-2333340	BTS-330K	Or.-Or.-Red " Plate Decoupling
104	47K	1/2	66-3473340	BTS-47K	Yl.-Yl.-Or. Diode RF Filter
105	270K	1/2	66-4273340	BTS-270K	Red-Yl.-Yl. " Load

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
106	100K	1/2	66-4103340	BTS-100K	Br.-Blk.-Yl. Tone Compensations
107	1 Meg.	1/2	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
108	15K	1/2	66-3153340	BTS-15K	Br.-Grn.-Or. FM Detector Oscillator Grid
109	47K	1/2	66-3473340	BTS-47K	Yl.-Yl.-Or. " Plate Dropping
110	100K	1/2	66-4103340	BTS-100K	Br.-Blk.-Yl. Tone Compensation
111	15K	1/2	66-3153340	BTS-15K	Br.-Grn.-Or. Voltage Dropping
112	53K	1/2	66-3533340	BTS-53K	Grn.-Blue-Or. FM Detector Screen Dropping
113	33K	1/2	66-3333340	BTS-33K	Or.-Or.-Or. Tone Compensation
114	4.7	1	66-9473340	BW-1-4.7	Yl.-Yl.-Gold Feedback
115	68K	1/2	66-0683340	BW-2-68	Blue-Gray-Blk.
116	1 Meg.	1/2	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Grid
117	1 Meg.	1/2	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. Bias
118	10 Meg.	1/2	66-8103340	BTS-10 Meg.	Br.-Blk.-Blue "
119	220K	1/2	66-4223340	BTS-220K	Red-Red-Yl. 1st AF Plate Load
120	1 Meg.	1/2	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. Phase Inverter Grid
121	47K	1/2	66-3473340	BTS-47K	Yl.-Yl.-Or. " Cathode
122	470K	1/2	66-2473340	BTS-470K	Yl.-Yl.-Red Bias
123	630K	1/2	66-2633340	BTS-630K	Blue-Gray-Red Phono Amplifier Cathode
124	4.7 Meg.	1/2	66-5473340	BTS-4.7 Meg.	Yl.-Yl.-Grn. " Grid
125	220K	1/2	66-4223340	BTS-220K	Red-Red-Yl. Tone Compensation
126	220K	1/2	66-4223340	BTS-220K	Red-Red-Yl. " "
127	470K	1/2	66-4473340	BTS-470K	Yl.-Yl.-Yl. Phono Amplifier Plate Decoupling
128	150K	1/2	66-4153340	BTS-150K	Br.-Grn.-Yl. " Load
129	56K	1/2	66-3563340	BTS-56K	Grn.-Blue-Or. Phase Inverter " "
130	330K	1/2	66-4333340	BTS-330K	Or.-Or.-Yl. Output Grid
131	330K	1/2	66-4333340	BTS-330K	Or.-Or.-Yl. " "
132	470K	1/2	66-4473340	BTS-470K	Yl.-Yl.-Yl. Tone Compensation
133	18K	1	66-3183340	BTA-18K	Br.-Gray-Or. Voltage Dropping
134	15K	1	66-3153340	BTA-15K	Br.-Grn.-Or. " "
135	1 Meg.	1/2	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. Bias
136	220K	1/2	66-4223340	BTS-220K	Red-Red-Yl. " Bleeder
137	10K	1	66-0103340	BW-1-10	Br.-Blk.-Blk. Series Pilot Light
138	165K	10	33-3439-1	AB-150	Bias

TRANSFORMER (MATCHING)

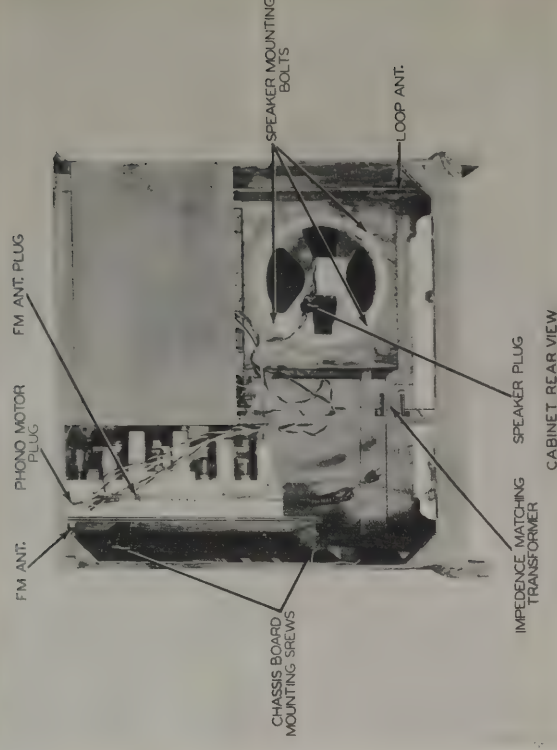
ITEM No.	RATINGS		REPLACEMENT DATA			
	RESISTANCE	URNS RATIO	PHILCO PART No.	STANCOR PART No.	THORDARSON PART No.	INSTALLATION NOTES
139	.32	5700	1 to 70	32-8256		

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	SEC. 4	PHILCO PART No.	STANCOR PART No.	THORDARSON PART No.
140	117V AC @ 1.04A	700V CT @ 1.28A	5.2V AC @ 3.1A	6.8V AC @ 3.6A	6.5V AC @ .3A	32-8282		T22R33**
** Drill new mounting holes.								

DISASSEMBLY INSTRUCTIONS

1. Remove the push-on type control knobs from dial panel of receiver.
2. Disconnect the phono-pickup plug from the matching transformer.
3. Disconnect the plug of the matching transformer from the receiver input receptacle.
4. Disconnect brown and white antenna lead plug from chassis.
5. Disconnect loop antenna black and white leads from terminal strip on chassis.
6. Disconnect phono-motor plug from chassis.
7. Pull out dial light and assembly from front of cabinet.
8. Remove the dial light from the bracket which lays on the top innermost side of record changer compartment.
9. Remove mercury switch from clip bracket in record changer compartment.
10. Remove four hex head machine screws holding chassis board to cabinet. Remove chassis board and chassis.
11. Remove five hex head machine bolts holding chassis to chassis board. Remove chassis.
12. Remove loop antenna by removing the Phillips screw, spacers, and washers holding loop to cabinet.
13. Remove two Phillips head screws holding matching transformer to cabinet. Remove transformer.
14. Remove four hex nuts and washers holding speaker to speaker bolts. Remove speaker.



MODEL 46-1213

PHILCO PAGE 9

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Reference marks referred to are found along bottom side of dial backplate. To set dial pointer turn variable fully closed and set pointer to last reference mark on left end of dial back plate. Volume control should be at maximum. Bass control turned fully counterclockwise, treble control fully clockwise and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjustments.

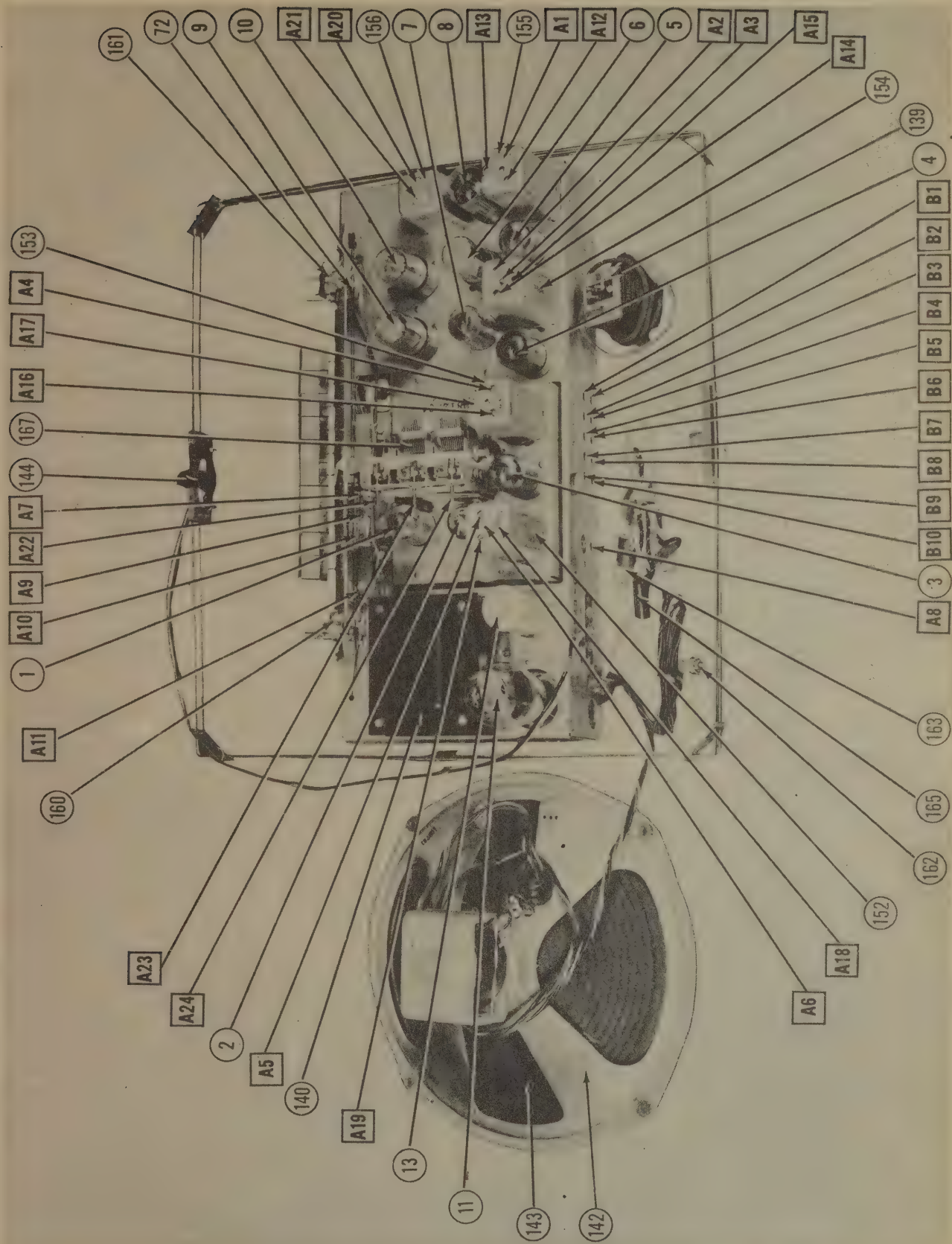
For FM IF alignment use an RC load of .1 MFD. cap. in series with 4700Ω resistor. In order to connect the RC load from high side of A13 to chassis, to adjust A12, it will be necessary to insert a wire through the top of can of FM detector transformer #156. Then connect the RC load from this wire to chassis.

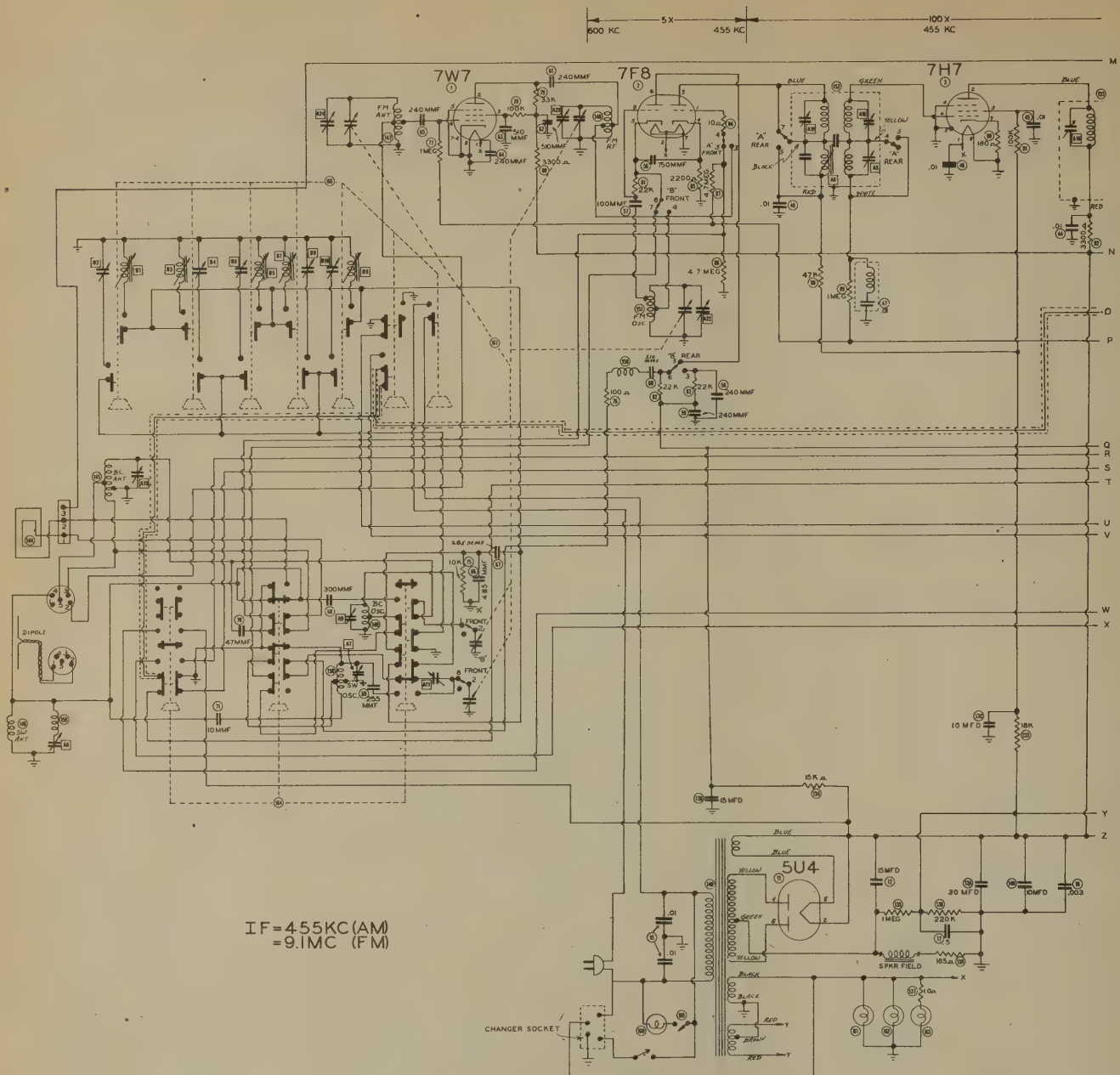
For FM coil adjustments use a tuning rod. One end of this consists of brass, the other powdered iron. If when holding the brass end near the coil the output increases expand the coil. If when holding the iron end near the coil the output increases, compress the coil. If a decrease of output is obtained when both the iron and the brass ends are held near the coil then the coil is correctly tuned. Only a small amount of compression or expansion should be used in adjusting these coils.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO SWITCH SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to station of front section of variable. Low side to chassis.	455KC modulated	BC	Variable fully open.	From terminal #3 of terminal strip on back of chassis to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum output.
	Loop	150KC modulated	SW			A7	Using a loop of few turns of wire radiate a signal to chassis. Loop and adjust for maximum output. Check for image at 14.1MC.
						A8	Rock variable and adjust for maximum output.
		1700KC modulated	EC	1700KC (1st mark from 14.1MC)		A9	Adjust for maximum output.
		1200KC modulated				A10	Rock variable and adjust for maximum output. Repeat last three steps until no further increase in output is obtained.
		550KC modulated				A11	
.1 MFD.	High side to junction of FM IF coil and cap. #61 (.240 MFD). Low side to chassis.	9.1MC modulated	FM	Variable fully closed		A12	Short pin 2 of FM1000 tube to chassis. Connect RC load from high side of A13 to chassis. See preliminary notes. Adjust for maximum output.
.1 MFD.						A13	Short pin 2 of FM1000 to chassis. Connect RC load from pin #2 of 3rd IF tube #5 to chassis. Adjust for maximum output.
.1 MFD.						A14	Short pin 2 of FM1000 to chassis. Connect RC load from pin #6 of 3rd IF tube #5 to chassis. Adjust for maximum output.
.1 MFD.						A15	Short pin 2 of FM1000 to chassis. Connect RC load from pin #2 of 2nd IF tube #4 to chassis. Adjust for maximum output.
.1 MFD.						A16	Short pin 2 of FM1000 to chassis. Connect RC load from pin 6 of 2nd IF tube #4 to chassis. Adjust for maximum output.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO SWITCH SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.						A17	Short pin 2 of FM1000 to chassis. Connect RC load from pin #2 of 1st IF tube #3 to chassis. Adjust for maximum output.
.1 MFD.	High side to pin #6 of 3rd IF tube unmodulated chassis.	9.1MC				A18, A19	Remove RC load and remove short from pin 2 of FM1000 tube. Short pin 4 of FM1000 to junction of resistor #109 and cap Nos. 30 & 51. Adjust for zero beat.
.1 MFD.						A21	Remove short in preceding step. Adjust for zero beat.
.1 MFD.	High side to yellow lead (pin 2) of FM dipole socket. Low side to chassis.	105MC modulated		105MC		A22	Short pin 2 of FM1000 to chassis. Adjust for maximum output.
.1 MFD.		695KC modulated		65MC		FM OSC. Coil #51	Adjust for maximum output. See preliminary notes on alignment for optimum operation repeat last 2 steps until no further output is obtained.
.1 MFD.		105MC modulated		105MC		A23	Rock tuning dial and adjust for maximum output.
	Dipole					A24	Fashion two dipoles with 25-30 inches of wire. Connect one dipole to chassis. Connect other to FM dipole socket (pins 1 & 2), the other to output of signal generator. Radiating signal into receiver in this manner and adjust for maximum output.
		92MC modulated		92MC		FM IF Coil #1	Adjust for maximum output. See preliminary notes on alignment for optimum operation repeat last 3 steps until no further improvement can be made.

CHASSIS—TOP VIEW





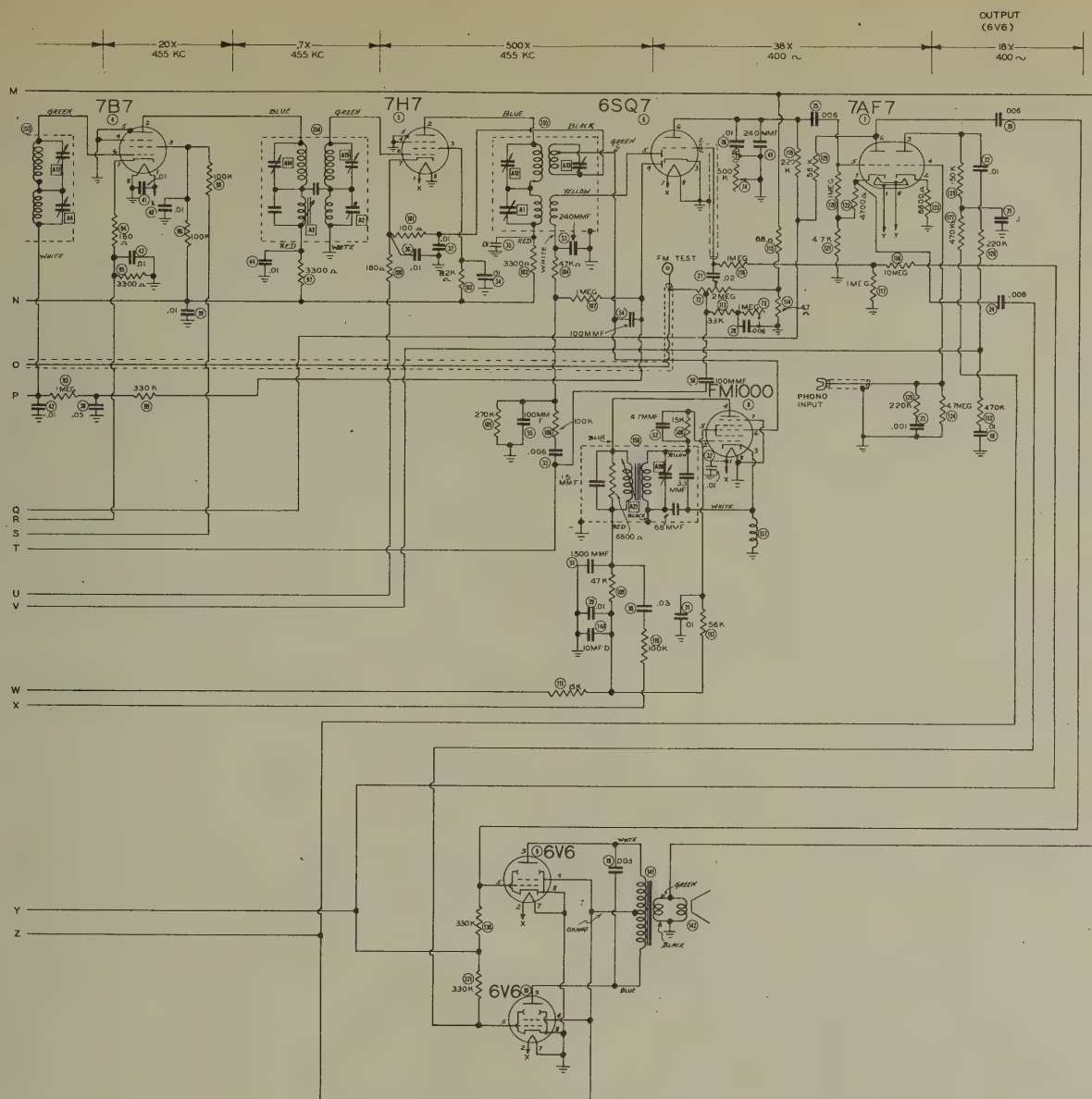
IF=455KC(AM)
=9.1MC (FM)

NOTE: MEASURE VOLTAGE ON TUBE NUMBER 8 IN FM POSITION.

VOLTAGE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	7W7	6.8 V.A.C	140 V.DC	65 V.DC	OV.	OV.	-4 V.DC	OV.	OV.
2	7F8	-5V.DC	6.8V.DC	142V.DC	1.8V.DC	OV.	130V.DC	OV.	-4V.DC
3	7H7	6.8 V.A.C	270V.DC	92V.DC	OV.	OV.	OV.	.9 V.DC	OV.
4	7B7	6.8 V.A.C	270V.DC	119 V.DC	OV.	OV.	-2V.DC	7 V.DC	OV.
5	7H7	6.8 V.A.C	245V.DC	88 V.DC	OV.	OV.	OV.	1.5V.DC	OV.
6	6SQ7GT	OV.	-6 V.DC	OV.	-7V.DC	-2V.DC	118 V.DC	6.8 V.A.C	OV.
7	7AF7.	3.3 V.A.C	55V.DC	137 V.DC	29V.DC	OV.	54 V.DC	2.8V.DC	3.3 V.A.C
8	FM 1000	6.8 V.A.C	-7 V.DC	OV	218V.DC	37 V.DC	1.5V.DC	OV.	OV.
9	6V6GT	OV.	6.8 V.A.C	260V.DC	280V.DC	-4.9V.DC	OV.	OV.	OV.
10	6V6G	OV.	6.8 V.A.C	264V.A.C	280V.DC	-4.4V.DC	-4V.DC	OV.	OV.
11	5U4G	OV.	282V.DC	6.8V.A.C	305V.A.C	17 V.A.C	305V.A.C	OV.	280V.DC

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



NOTE: MEASURE RESISTANCE ON TUBE NUMBER 8 IN FM POSITION.

RESISTANCE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	7W7	.1 Ω	210 K Ω	280 K Ω	0 Ω	0 Ω	2.7 MEG.	0 Ω	0 Ω
2	7F8	2.7 MEG.	.1 Ω	200 K Ω	2200 Ω	.5 Ω	185 K Ω	0 Ω	20 K Ω
3	7H7	.1 Ω	150 K Ω	250 K Ω	0 Ω	0 Ω	2.7 MEG.	150 Ω	0 Ω
4	7B7	.1 Ω	150 K Ω	80 K Ω	0 Ω	0 Ω	1.8 MEG.	2.8 K Ω	0 Ω
5	7H7	.1 Ω	150 K Ω	230 K Ω	0 Ω	0 Ω	13 Ω	140 Ω	0 Ω
6	6SQ7GT	0 Ω	1.7 MEG.	0 Ω	1.1 MEG.	320 K Ω	255 K Ω	.1 Ω	0 Ω
7	7AF7	.2 Ω	46 K Ω	220 K Ω	900 K Ω	4.7 MEG.	770 K Ω	6800 Ω	.2 Ω
8	FM 1000	.1 Ω	14 K Ω	7.3 Ω	210 K Ω	220 K Ω	240 Ω	0 Ω	0 Ω
9	6V6GT	0 Ω	.1 Ω	150 K Ω	150 K Ω	420 K Ω	0 Ω	0 Ω	0 Ω
10	6V6GT	0 Ω	.1 Ω	150 K Ω	150 K Ω	500 K Ω	1.3 K Ω	0 Ω	0 Ω
11	5U4G	0 Ω	150 K Ω	2.5 Ω	620 Ω	620 Ω	620 Ω	0 Ω	150 K Ω

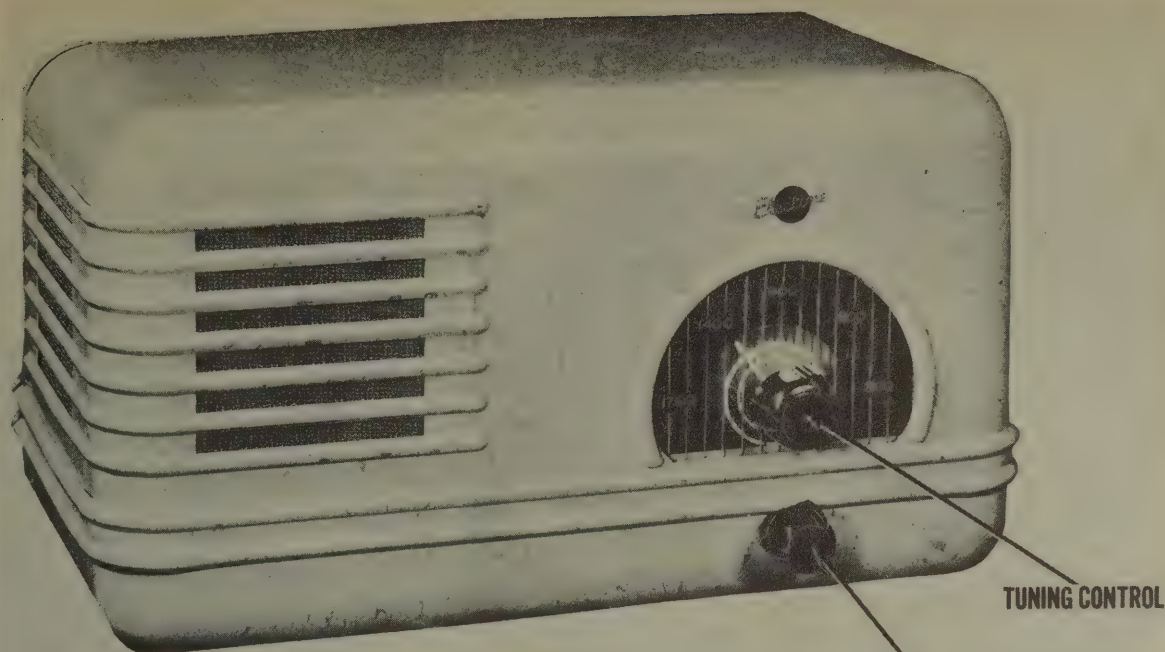
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

472-33

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A detailed black and white photograph of a complex mechanical assembly, likely a vehicle engine or transmission, with numerous numbered callouts (1-166) pointing to various components for identification. The assembly is dense with parts, including what appears to be a central housing, various shafts, gears, and external components like a fan or pulley on the left. The callouts are arranged in a grid-like fashion around the image, with lines pointing to specific parts. The numbers range from 1 to 166, covering the entire assembly.

ELECTONE
MODEL T5TS3



ELECTONE
MODEL T5TS3

ELECTONE MODEL T5TS3

TRADE NAME Electone Model T5TS3 MANUFACTURER Northeastern Engineering Inc., Manchester, New Hampshire TYPE SET AC-DC Superheterodyne Receiver TUBES (FOUR) Types 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output POWER SUPPLY 117 Volts AC-DC TUNING RANGE—BROADCAST 540-1725KC						
RATING .325 Amps. @ 117V AC						
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
To set pointer turn variable fully closed and set dial so that the dial line is to the right and parallel with the base of the dial back plate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to stator of front section of variable. Low side to B-.	456KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
200 MFD	High side to ext. ant. lead. Low side to B-.	1725KC	"	"	A5	Adjust for maximum output.
200 MFD	"	1500KC	Tune for maximum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		ELECTONE PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7GT	12SA7GT	8R	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		ELECTONE [®] PART No.	REPLACEMENT DATA				MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT		SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.		
5A	50	150		DSB-5030-150	TA-530	PRS150-40-40	BRD3515	2N520	Filter-Red
B	30	150							" -Green
6	.05	400	S-4-05		TC-15	484-05	D74S5	TP426	Line filter
7	.02	400	S-4-02		TC-12	484-02	D74S2	TP423	Output Plate Bypass
8	.02	400	S-4-02		TC-12	464-02	D74S2	TP423	" "
9	.002	600	S-6-002		TC-22	684-002	D74D2	TP405	" "
10	.05	200	S-4-05		TC-15	484-05	D74S5	TP426	AVC Filter
11	.05	400	S-4-05		TC-15	484-05	D74S5	TP426	Line Isolation
12	250	500	MO.5-325		1FM-325	1468-00025	SW5725	MC240	Audio Plate Bypass
13	250	500	MO.5-325		1FM-325	1468-00025	SW5725	MC240	IF Bypass Vol. Cont.
14	1000*	500	MO-3-21		1FM-21	1468-001	1WS125	MC255	Ext. Antenna Isolation

CONTROLS

ITEM No.	RATING RESIST. ANCE	WATTS	REPLACEMENT DATA				INSTALLATION NOTES
			ELECTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
15A	2 Meg.	1		MP55	D13-139	M-56-Z	Volume Control. See Note 1
B	Switch			Not Req.	A	Not Req.	Attach to 15A per instructions
15B	500K Ω	1		MP48	D13-133	M-50-Z	Volume Control. See Note 2
C	Switch			Not Req.	A	Not Req.	Attach to 15A per instructions.

Note 1 Used in later production.

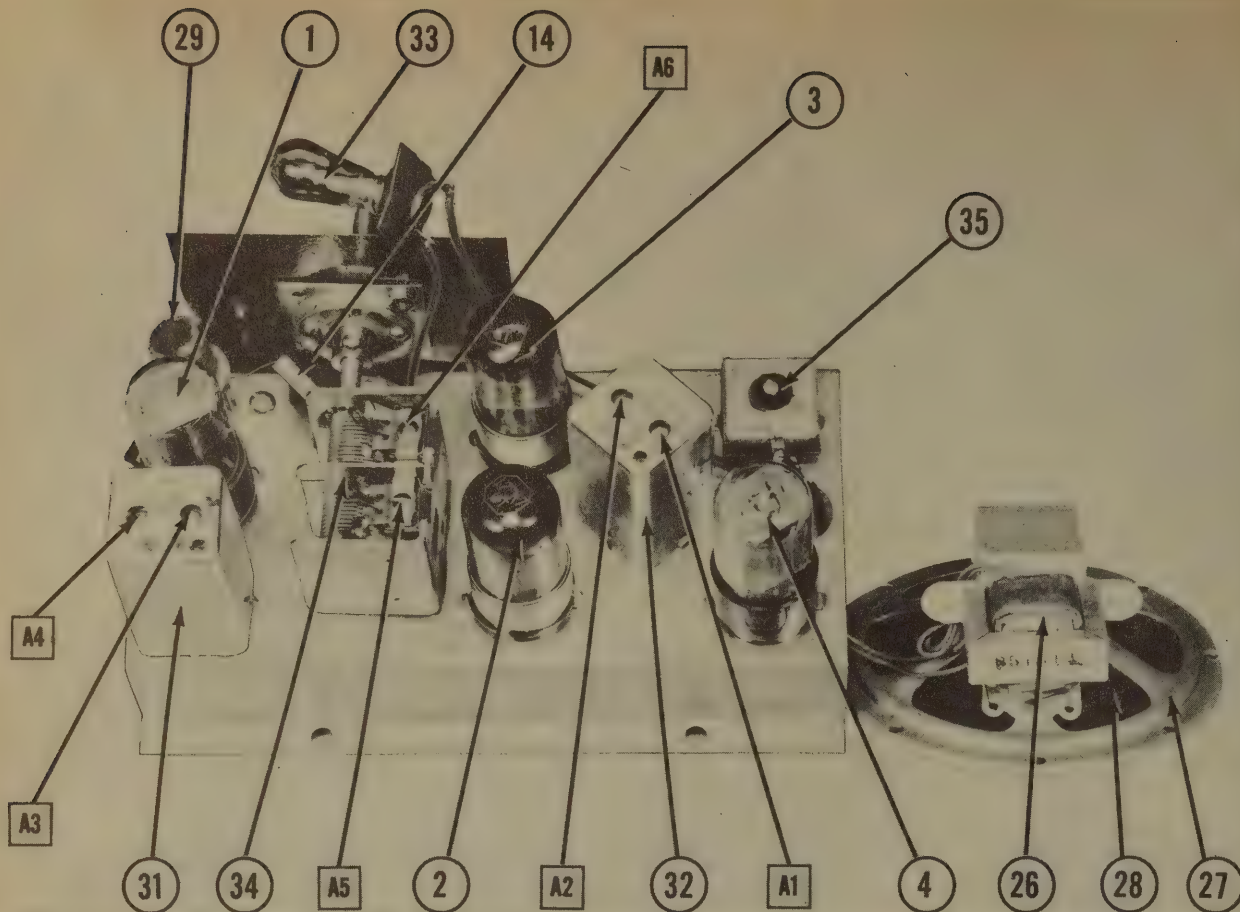
Note 2 " " early

RESISTORS

ITEM No.	RATING RESISTANCE	WATTS	REPLACEMENT DATA		IDENTIFICATION CODES
			ELECTONE PART No.	IRC PART No.	
16	250K Ω			BTS-270K	Red-Grn.-Yl. Line Isolation
17	25K Ω			BTS-22K	Red-Red-Or. Oscillator Grid
18	3.3Meg.			BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
19	15 Meg.			BTS-15 Meg.	Er.-Grn.-Blue AF Grid
20	470K Ω			BTS-470K	Yl.-Vi.-Yl. " Plate Load
21	470K Ω			BTS-470K	Yl.-Vi.-Yl. Output Grid
22	150 Ω			EW-1-150	Er.-Grn.-Br. Cathode
23	1000 Ω			AB-1000	Filter
24	15 Ω			BW-1-15	Surge Limiter
25	200 Ω			FB-200	Line Dropping

Note 3 - Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	ELECTONE PART No.	STANCOR THORDAR'N PART No.	
26	1700Ω	3.4Ω	1759	72	

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		ELECTONE PART No.	JENSEN PART No.	
27	FIELD VC IMP. PM 3.4Ω		ST-105	
28	CONE DIA VC DIA. 4-3/4" 1/2"		Mod. P5-V	

NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT.

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	ELECTONE PART No.	MEISSNER PART No.	
29	Ant. Coil	38.3Ω	5Ω		14-1025	
30	Osc. Coil	16Ω	6.5Ω		14-1040	
31	Input IF	14.5Ω	14.5Ω		16-6658	
32	Output IF	14.5Ω	14.5Ω		16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ELECTONE PART No.		
33	Screw	115	.05				Type 686

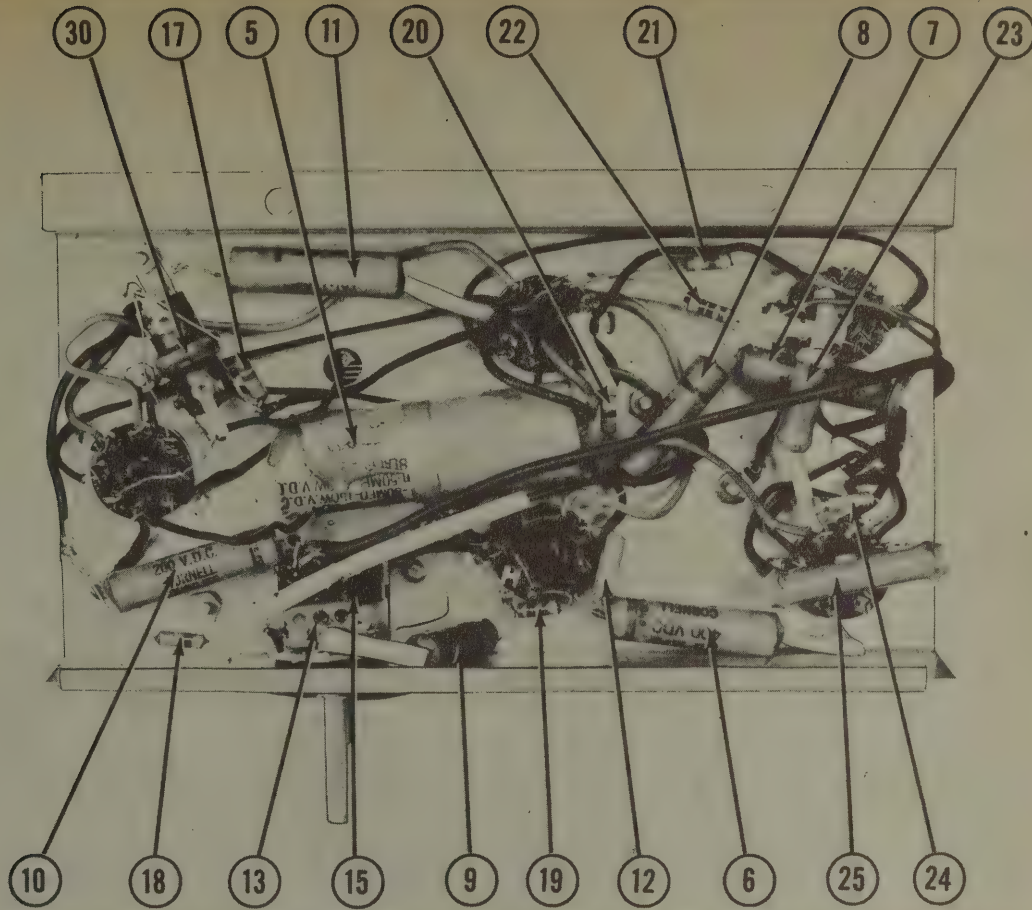
MISCELLANEOUS

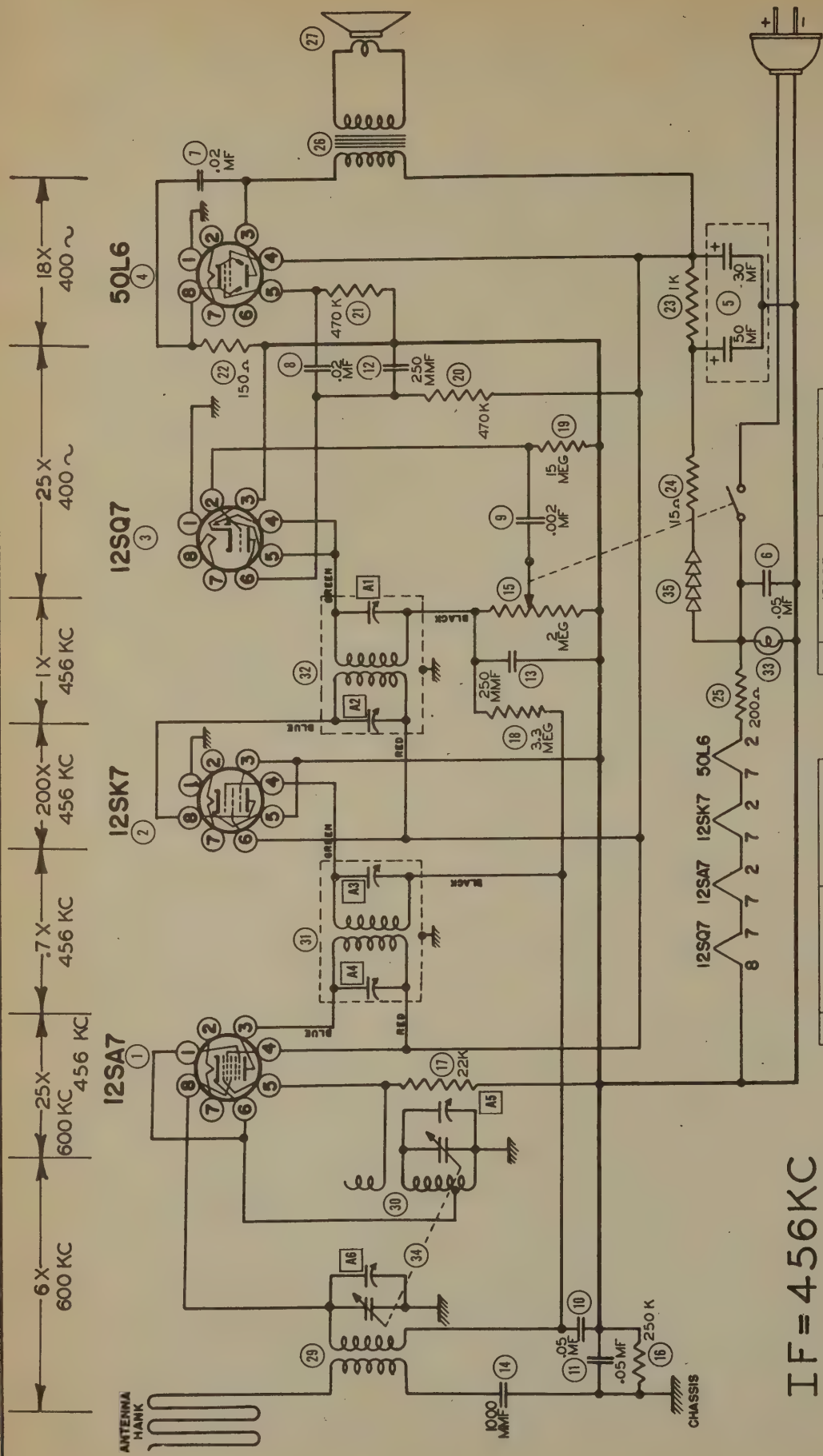
ITEM No.	PART NAME	ELECTONE PART No.	NOTES
34	2 Gang Var. Cap		(37-464 MUF, 30-207 MUF)
35	Rectifier		Selenium 100MA 5 Plates

SERVICE HINT

If difficulty is encountered with this receiver, with respect to detuning of the set by pressing in on the condenser drive knob, wedge a piece of rubber between the chassis and the rear of the variable condenser.

CHASSIS—BOTTOM VIEW





117 VOLTS
AC/DC

RESISTANCE READINGS IN THE B+ CIRCUITS
MAY VARY WIDELY ACCORDING TO THE
CONDITION OF THE FILTER CAPACITORS

472-34

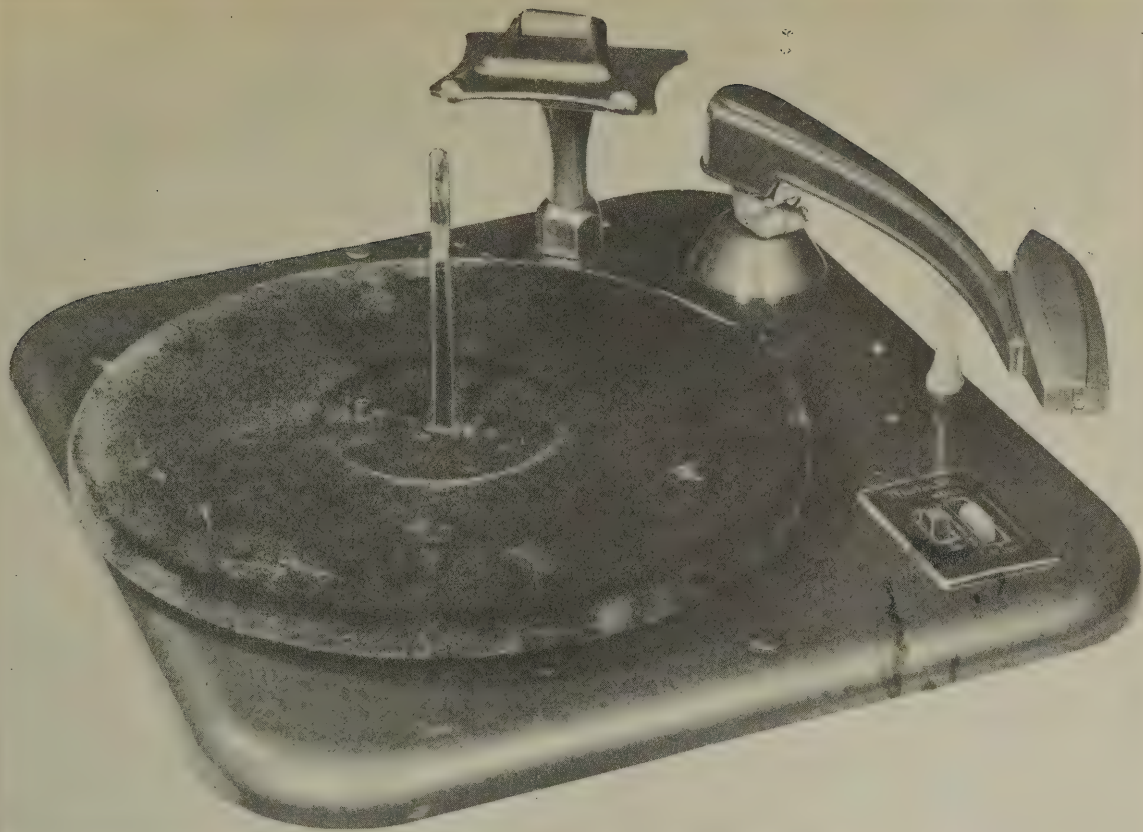
Pin No.	12SA7	12SK7	12SQ7	50L6
1	OV.	OV.	OV.	OV.
2	23.5VAC	35VAC	87VAC	87VAC
3	83VDC	20KΩ	OV.	77VDC
4	83VDC	20KΩ	2MEG.	83VDC
5	3VDC	22KΩ	2MEG.	OV.
6	OV.	8Ω	550KΩ	OV.
7	12VAC	10Ω	10Ω	35VAC
8	2VDC	5MEG.	OV.	4.6VDC

Pin No.	12SK7	12SQ7	50L6
1	OV.	OV.	OV.
2	85VDC	15MEG.	87VAC
3	OV.	OV.	77VDC
4	55VDC	2MEG.	83VDC
5	55VDC	2MEG.	OV.
6	50VDC	550KΩ	OV.
7	12VAC	10Ω	35VAC
8	OV.	OV.	4.6VDC

THE COOPERATION OF THE MANUFACTURER
OF THIS RECEIVER MAKES IT POSSIBLE TO
BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



TOP VIEW

GENERAL INFORMATION

These record changers are single post changers designed to play ten 10-inch or eight 12-inch records, not intermixed. The last record will be repeated until the changer is turned off.

The B24RC and B27RC are designed to be used in 1946 Motorola home receivers. The B25RC and B28RC are designed for 1946 Motorola wireless record players. These changers are identical in mechanical operation, though their appearances are slightly different. Parts which are not interchangeable are so marked in the parts list.

For service information on phono oscillator chassis HS-18, used with the B25RC and B28RC, see Motorola WR6, WR7, WR8.

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MANUAL OPERATION

To play records manually, push the right-hand button to "manual" position and load one record at a time. Turn the record support to 12-inch position to allow more room for loading and unloading. The records may be tilted to clear the lip of the record support as they are placed on the turntable.

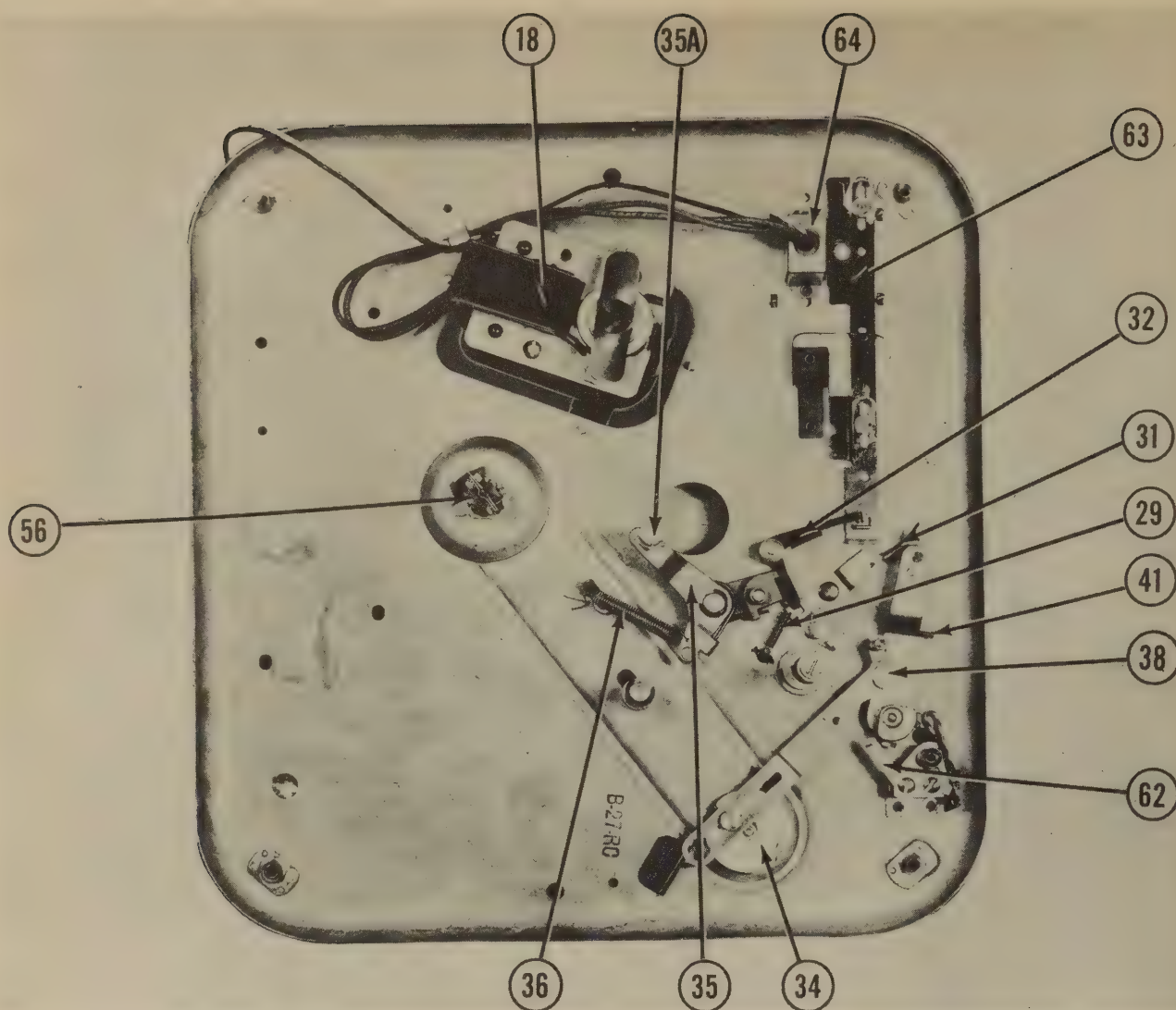
AUTOMATIC OPERATION

Up to ten 10-inch or eight 12-inch records may be loaded so that they rest on the eccentric in the spindle assembly and on the record support platform. Turn the motor switch to "on," and push the control button momentarily to "Reject." The entire stack of records will be played, and the last record repeated until the changer is turned off.

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BOTTOM VIEW MINUS CAM AND GEAR ARM

THE CHANGE CYCLE

As the end of the record is reached and the needle moves into the cutoff groove, one of two things can happen:

1. If the needle comes within $1\frac{7}{8}$ " of the spindle, the positive trip screw (41) strikes the trip link, thereby releasing the trigger (32 and 35).
2. As the arm nears the center of the record, the trip pawl (Part of 38) engages the serrated portion of the ratchet arm (32). When the eccentric groove causes the arm to move away from the spindle, the trip pawl straightens, pushing the ratchet arm away and thus releasing the trigger.

Tripping the trigger releases the bell crank (35) and allows its tension spring (36) to push the cycle drive pulley (20) against the inside rim of the turntable. At the same time, the roller on the bell crank leaves the detent notch in the main cam (44), allowing the cam to revolve.

As the main cam revolves, the pickup lift rod (3A) rides out of the inclined section, forcing the pickup clear of the record.

Continued revolution of the main cam causes the stud on the selector arm (38) to follow the specially shaped groove in the top of the cam, moving the pickup arm outward, clear of the record.

A roller on the end of the gear arm (53) rides in the

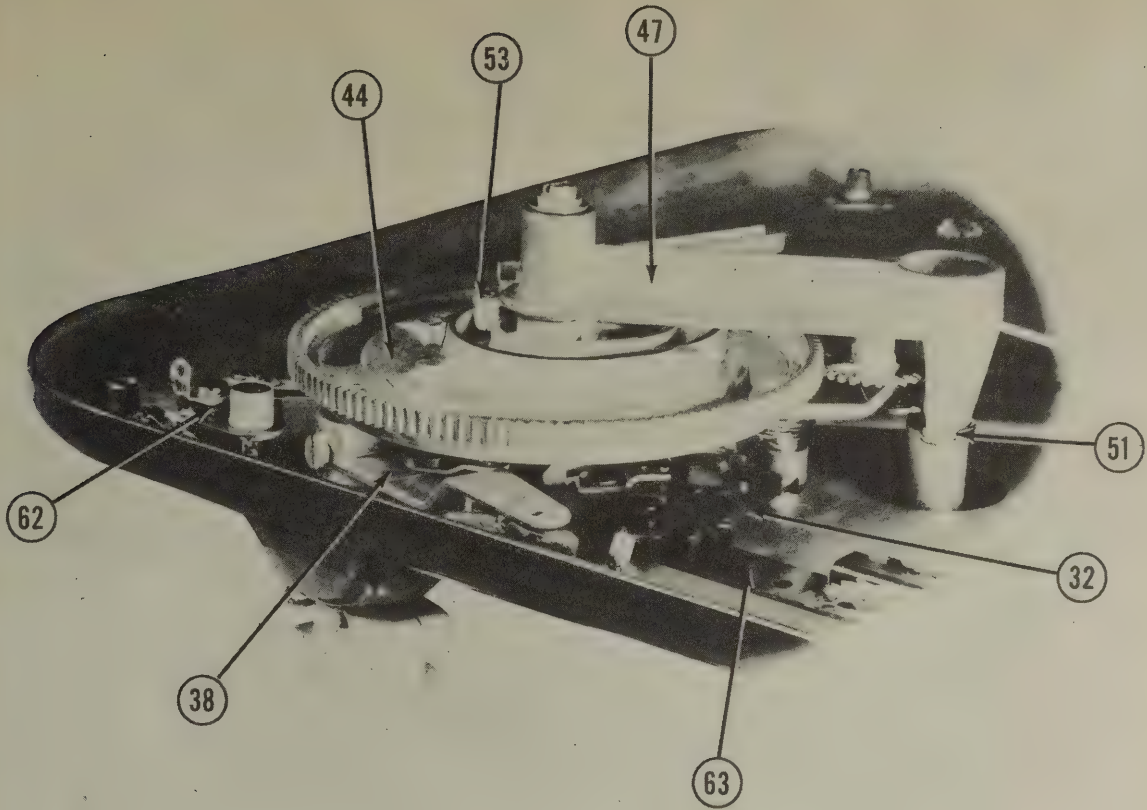
groove on the under side of the cam, causing the eccentric (14) to rotate 180 degrees to pick up a record, then back to its normal position in line with the spindle to allow the record to drop on the turntable.

The stud on the selector arm (38), still riding in its groove on the main cam, moves the pickup arm back over the set down point. The pickup lift rod (3A) then rides back down into the inclined section of the main cam, lowering the pickup to the record.

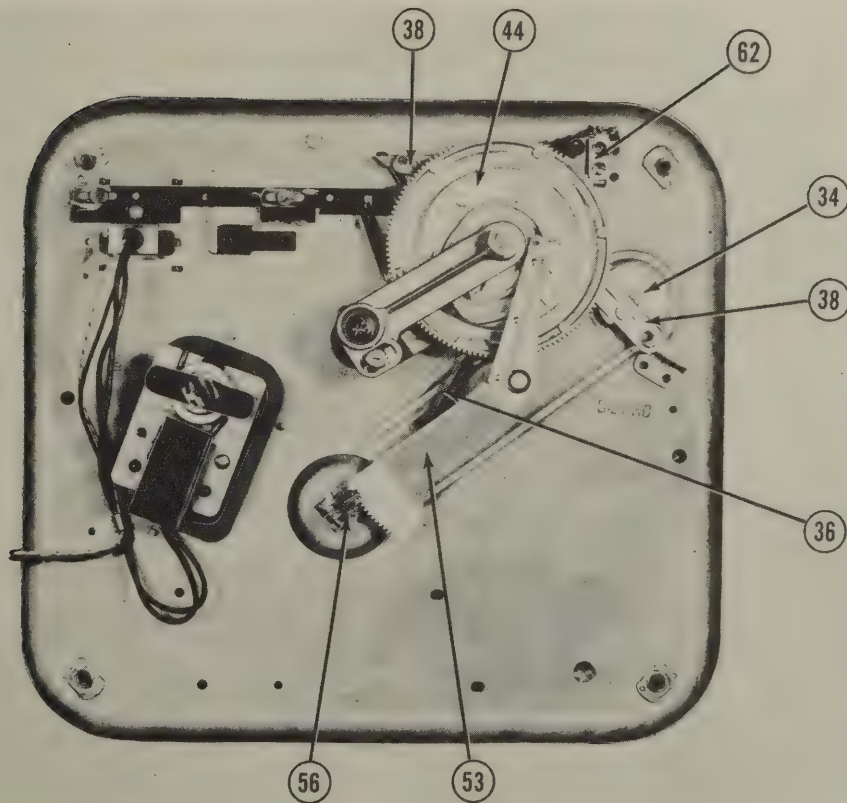
As the main cam nears full 360° rotation, the trigger reset extrusion (44A) on the main cam pushes against the trigger reset stud on the small trip arm, setting up the trigger for the next cycle. At the same time spring tension is applied to the bell crank lever by the torsion spring so that when the main cam detent notch reaches the bell crank lever roller the roller falls into the notch, pulling the cycle drive pulley away from the turntable.

A shorting switch, actuated by the main cam, shorts the pickup during the change cycle, preventing unwanted noises from reaching the speaker.

Turning the record support platform automatically sets the mechanism so the set-down point will be correct for the size records being played. Selector arm (38) is moved by the stud on the selector plate (34), changing the angle between the selector arm and the trip arm.



SIDE VIEW

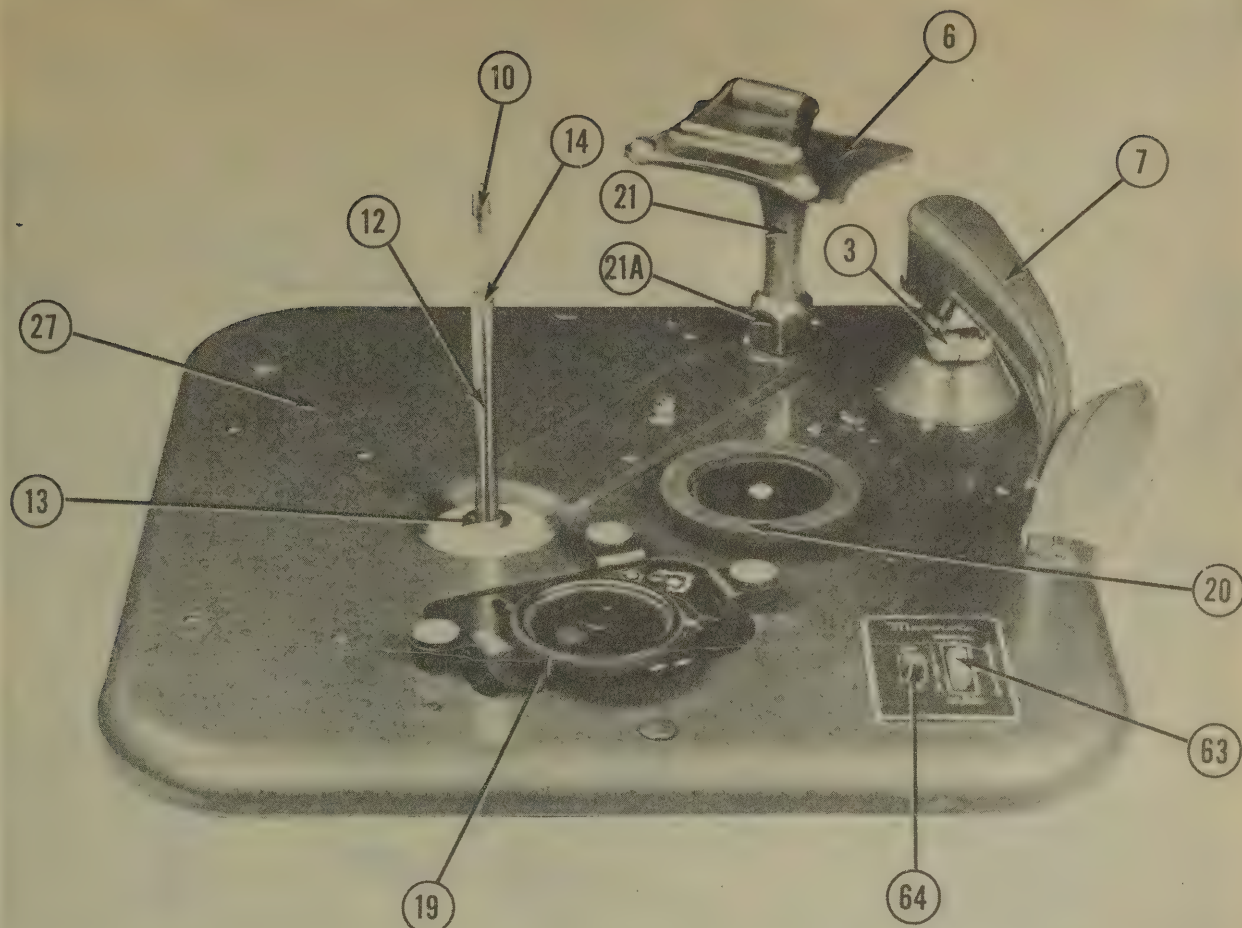


BOTTOM VIEW

PARTS LIST

No.	Part No.	DESCRIPTION	No.	Part No.	DESCRIPTION
1	45D71605-G	Pickup arm	30	2S8397	Nut, steel 1/2-28 x 5/8 hex.
2	47A71685	Pin, pickup arm: steel	31	41A27775	Spring, tension
3	1X72338 4S7569	Pickup shaft and cam assembly Washer—located in pickup cam assy.	32	1X75569 45A74582	Ratchet arm and bushing assembly Trip link
3A	47A71633	Pickup lift rod	33	4K24125	Washer "C" spring
4	3A71612	Screw, adjustment (pickup arm lat. adj.)	34	*1X76778 1X71788 41A71635	Selector shaft and plate assembly, B27RC & B28RC Selector shaft and plate assembly, B24RC & B25RC Spring for detent plate
5	4K24125	Washer "C"	35	1B71785	Bell crank assembly
6	1X76774	Plate and clamp assembly	36	41A72337	Spring, drive arm tension
7	3S9700	Setscrew, steel 6-32 x 3/16 Allen hd. cup point	37	4A21941	Washer "C" spring
8	42A75809-A 35A74664 35A74665 35K74908	Clip, cartridge retainer Pad, cartridge, large Pad, cartridge, small, use with Shure Pad, cartridge, small, use with Webster	38	*1X76779 1X71789	Trip arm and selector lever assembly, B27RC & B28RC Trip arm and selector lever assembly, B24RC & B25RC
9	59A71618 or 57A74887	Cartridge, crystal	39	41A76681	Spring, tension
10	*1B76766 1B71709	Spindle and release assy., B27RC & B28RC Spindle and release assy., B24RC & B25RC	40	3S7152	Screw, steel 6-32 x 1/4 HHMS
11	59C71664	Turntable	41	3S2697	Screw, steel No. 2 x 5/8 PKZ
12	*47B76762 47A71702	Record Post and bearing assembly, B27RC & B28RC Record post and bearing assembly, B24RC & B25RC	42	47A21298	Shaft, cam
13	*43A76396-A 43X4554	Bearing, oilite: ring type, B27RC & B28RC Bearing, ball: .062 dia. (16), B24RC & B25RC	43	4A21491	Washer, brass 9/16 x .315 x .020 thick
14	*1B76770 47A72662	Eccentric and tube assembly, B27RC & B28RC Eccentric and tube assembly, B24RC & B25RC	44	1B71679	Cam wheel and bearing assembly
15	3S7342	Screw, steel 6-32 x 5/8 BHMS cad. pl.	45	4A21491	Washer, brass 9/16 x .315 x .020 thick
16	4S1765	Washer, steel 1/2 x .147 x 1/64 thick	46	4A21941	Washer, "C" spring
17		Spacer, motor mounting	47	1X71794	Drive arm assembly
18	59C71678 or 59C75524	Motor, phono: 117V, 60C	48	4S7597	Washer, steel 7/16 x .171 x .033
19		Idler wheel	49	4S7671	Lockwasher, steel No. 8 split
20	1X71795	Pulley and shaft assembly	50	3S7374	Screw, steel 8-32 x 5/16 HHMS
21	*46B76775-G 46B71653-C	Support, post, B27RC, B28RC Support, post, B24RC, B25RC	51	42A76484-A	Spring, clip
21A	*2A76397-B	Nut, adjustment, use with 46B76775-G	52	46A71631	Stud, shoulder
22	3S2291	Screw, steel 8-32 x 5/16 HHMS	53	1X76781	Gear arm assembly
23	4S7671	Lockwasher, steel No. 8 split cad. pl.	54	4A21941	Washer, "C" spring
24	4S7623	Washer, steel 3/8 x 11/64 x .033	55	2A72311	Nut, special
25	3S2287	Screw, steel 12-24 x 1/4 BHMS	56	44B71634	Gear, spindle
26	4S7643 46A27563	Washer, steel 11/16 x 15/64 x .021 thick Pickup resting post, tenite	57	3S7109	Setscrew, steel 6-32 x 5/16
27	27D71601	Base plate	58	2S7019	Nut, steel 4-40 x 1/4 hex.
28	4S8441	Lockwasher, steel 1/2 external	59	42A71690	Clamp, spindle
29	41A76681	Spring, tension	60	7A71688	Bracket, spindle
			61	3S2286	Screw, steel: lockscrew 4-40 x 3/16 HHMS
			62	40A72571 1X75267	Muting switch Receptacle, bracket, and muting switch assembly
			63	45B27543	Control slide
			64	40A27846 40A27545	Power switch, B24RC, B27RC Power switch, B25RC, B28RC
				45A27549-D	Manual lever

*Parts not interchangeable.



TOP VIEW MINUS TURNTABLE

ADJUSTMENTS

RECORD SUPPORT PLATFORM

1. Turn the record support platform (6) to the 10-inch position, being sure it is turned so that the selector spring falls into the detent notch.
2. Place a standard 10-inch record on the spindle and cycle the changer to drop the record on the turntable, then stop the changer.
3. Lift the record so that it is in line with the eccentric (14) and check to see that it clears the lip of the record support platform equally at all points.
4. If the adjustment is incorrect, loosen the two Allen head screws under the record support platform and adjust the platform.
5. After adjusting the platform, run the changer through a complete cycle using a 10-inch record and check the set-down point. If the needle misses the record by one inch, the platform is 180 degrees out of line with the detent plate and should be turned one-half turn without moving the detent plate.

RECORD DROP MECHANISM

Cycle the changer once, by pulling the control button to "Reject." At the end of the cycle, stop the changer and check the position of the eccentric (14) with respect to the record post (12). It should line up perfectly. If not, adjust as follows:

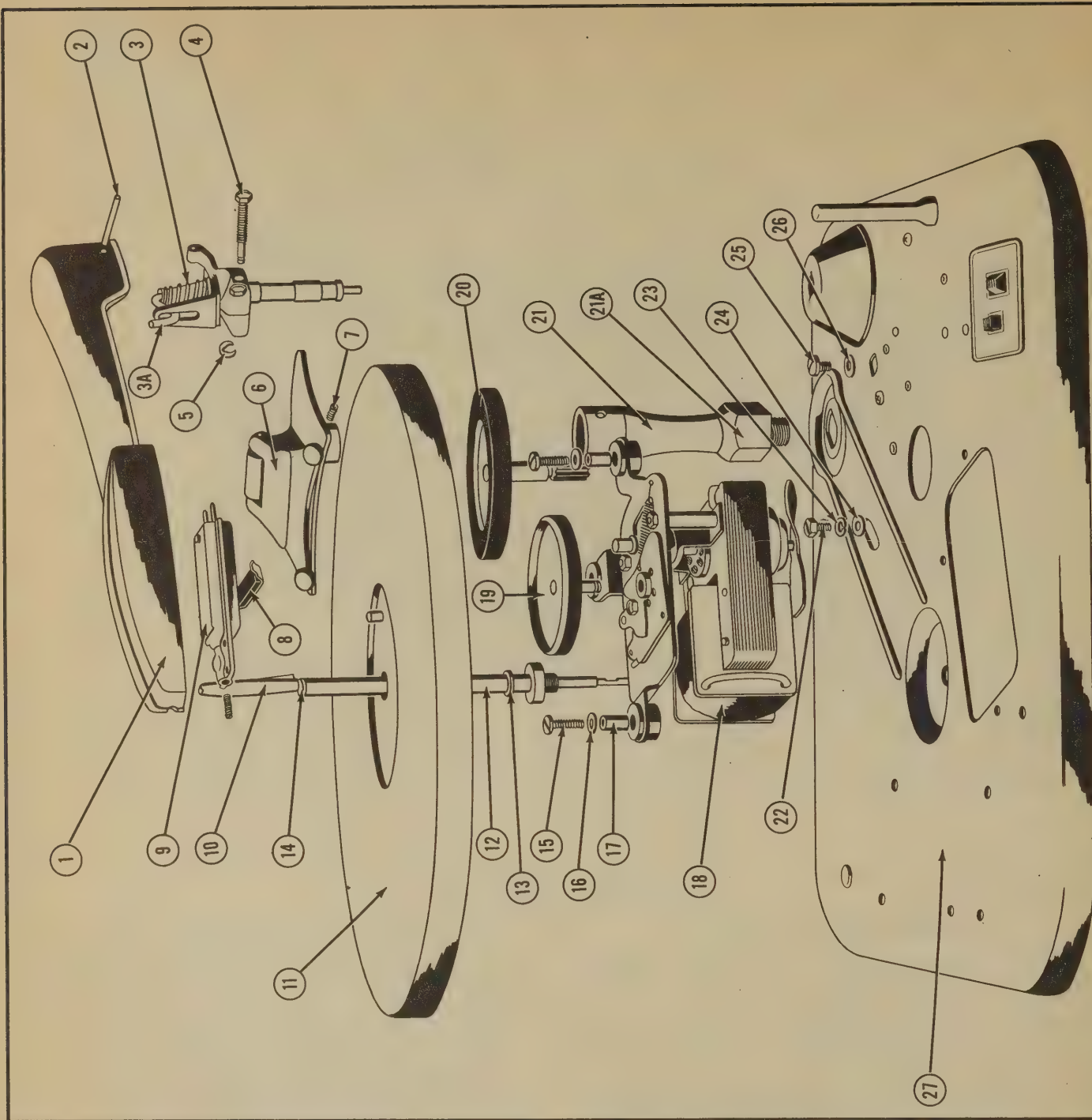
1. Pull the reject button and revolve the turntable slowly by hand until the gear arm roller is resting on the

raised section of the record release guide groove. This raised portion is very small, resembling "flash" on castings. It serves to constrict the groove at one point to insure closer alignment between the eccentric and the record post.

2. Loosen the slab head set screw in the spindle gear (56). This allows the eccentric to turn freely.
3. Turn the eccentric so that it aligns perfectly with the record post and retighten the set screw.

SET-DOWN POINT

1. Turn the record support platform to the 12-inch position.
2. Place a standard 12-inch record on the turntable.
3. Start the changer and allow it to go through its cycle.
4. Note where the needle contacts the record. This point should be approximately one-half way between the edge of the record and the first groove.
5. If the set-down point is incorrect, recycle the changer and stop it just as the pickup comes down and is about to touch the record.
6. Loosen the lock screw (Part of 3) and turn the lateral adjustment screw (4) until the needle is centered properly between the edge of the record and the first groove.
7. Tighten the lock screw. Care must be used in older models to prevent cracking the casting.
8. Check with a 10-inch record. Some compromise may be necessary to make the set-down point correct for both sizes.



POSITIVE TRIP

This adjustment must be made after the set-down point has been properly adjusted.

1. Draw a $3\frac{3}{4}$ " diameter circle on a piece of stiff paper. Cut a $\frac{1}{4}$ " hole in the center. Slip this over the record post on to the turntable.
2. Set the record support platform to 12 inch.
3. Turn on the changer and run through a complete cycle. This should leave the pickup free. Turn off the changer.
4. Move the pickup slowly toward the center. A click should be heard as the needle passes the $3\frac{3}{4}$ " circle.
5. If the click is heard before or after the needle passes the circle, the positive trip adjustment screw should be adjusted as follows:
6. With the pickup on its rest, reset the trigger by moving

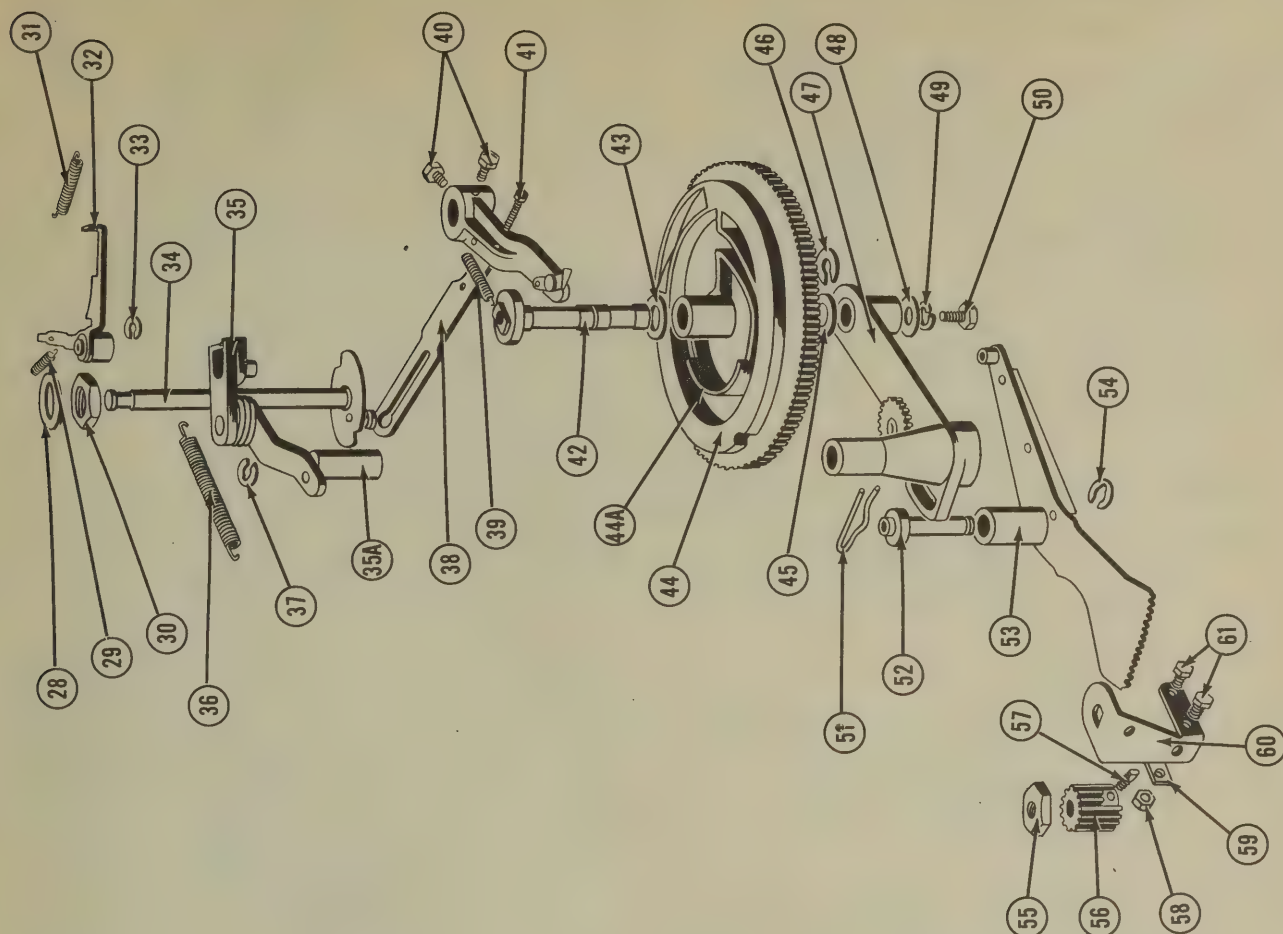
the control button to "manual" then back to "automatic."

7. Adjust the positive trip adjustment screw (41) clockwise if the trip is too close to the record post, counter-clockwise if trip occurred before the $3\frac{3}{4}$ " circle was reached.
8. Check adjustment and repeat if necessary.

VERTICAL ADJUSTMENT OF PICKUP ARM

To check the vertical adjustment of the pickup arm:

1. Turn the record support platform to the 12-inch position and cycle the changer. When the cycle is complete, turn off the changer. The pickup should be resting by the side of the turntable. The needle should be exactly level with the top of the turntable.



ECCENTRIC STUD ADJUSTMENT

This adjustment must be made very carefully. Overadjustment will cause slow cycling and undue motor wear.

2. Fully load the changer with records, ten 10-inch or eight 12-inch records. Start the changer and drop one record on the turntable. The pickup should come down on the record in normal playing position.
3. Push the button to "reject" momentarily. Watch the pickup to see that there is sufficient clearance between the top of the pickup arm and the bottom of the bottom record on the support post.
4. Drop the entire load on the turntable and check that there is clearance between the pickup and the top record. If adjustment is necessary, it may be made by bending the pickup lift rod at the flat portion.
1. Cycle the changer and stop the motor when the pickup comes back within one inch of the turntable.
2. Loosen the eccentric stud (35A) completely.
3. Rotate the turntable by hand counterclockwise one quarter turn and back. Pickup should not move.
4. Slowly tighten the eccentric until the pickup begins to move with clockwise rotation but not with counterclockwise rotation. This is the critical point. Do not hold the screwdriver on the stud while checking.
5. Tighten the eccentric stud barely far enough to pick up the motion when the turntable is turned backward.
6. To check for too tight adjustment, time a complete cycle with the motor running. If the cycle requires more than seven seconds, the adjustment is too tight and steps 1 through 5 should be repeated.

TROUBLES

MECHANISM SLOW IN STARTING OR MOTOR HEATS UP

1. Check lubrication. Phono motor and turntable bearings use No. 10 motor oil. All other bearings and moving parts use No. 105 Lubri-plate.
2. Dirt in bearings. Clean with carbon tetrachloride and re-lubricate.
3. Be sure line voltage and frequency are correct.
4. Damaged motor.
5. Eccentric stud out of adjustment.
6. Grease on idler wheel or turntable rim. Clean with carbon tetrachloride.
7. Room temperature abnormally low.

SQUEAKS DURING PLAYING OF RECORDS

1. Apply wax to record post.

CHANGER NOISY IN CYCLE

1. Check lubrication.
2. Check for bent parts.
3. Check lubrication of center post eccentric shaft.

CHANGER WILL NOT CYCLE

1. Check adjustment of eccentric stud.
2. Weak pawl spring.
3. Pawl frozen on trip arm. Clean if necessary; if binding is due to any other cause, replace entire trip arm and selector lever assembly.
4. Weak bell crank arm spring. Tighten by bending spring.
5. Bell crank arm binding on shaft.
6. Drive arm or main cam wheel binding.

CHANGER CYCLES CONTINUALLY

1. Eccentric stud adjusted improperly.
2. Bell crank torsion spring too weak. Replace.
3. Worn parts in trigger mechanism. Replace worn parts.
4. Small trip arm may not be lifted far enough by the trigger reset extrusion. Expand casting at extrusion by dotting with center punch.
5. Manual lever wedged between base and small trip arm. Bend lever slightly away from the base.

PICKUP ARM TRIPS OUT OF OSCILLATING GROOVES

1. Record changer not level.
2. Ratchet arm bent too close to trip pawl.
3. Rough surface on catch surface of small trip arm.



PICKUP ARM

4. Pickup arm main shaft binding.
5. Insufficient clearance between trip arm and changer base.
6. Selector lever bent.
7. Selector lever binds on rivet in detent plate. Correct by spreading slot in selector lever.

RECORD WILL NOT DROP

1. The record release in the spindle assembly may not be protruding far enough. It should protrude as far as the eccentric when the eccentric is picking up a record.
2. Eccentric out of line with record post.
3. Set screw in spindle gear loose.

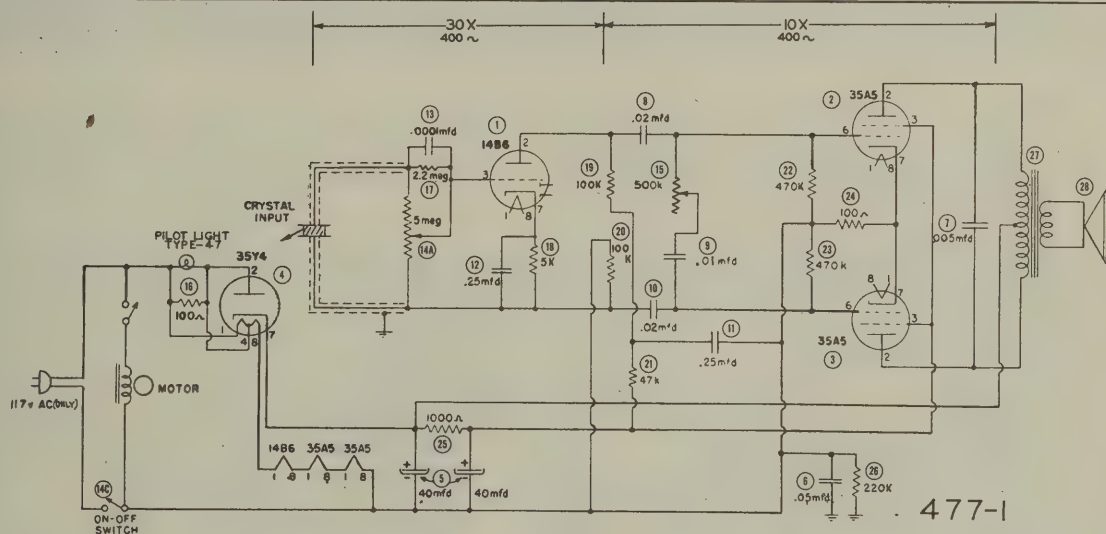
TONE CONTROL

AUTO-MAN-REJECT
ON-OFF SWITCH

VOLUME CONTROL
ON-OFF SWITCH

AIRCATTLE MODEL 641

TRADE NAME Aircastle Model 641
MANUFACTURER Spiegel, Inc., 1061 W. 35th St., Chicago, Ill.
TYPE SET AC Operated Record Player with 4 Tube Amp. and speaker.
TUBES (FOUR) Types, 14B6 Audio Amp. & Phase Inverter, 2 - 35A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY 105-125 Volts AC **RATING** .265 Amp. @ 117V AC



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14B6	13.5VAC	90VDC	0V	5VDC	0V	0V	15VDC	0V
2	35A5	48VAC	108VDC	0V	0V	0V	0V	7.2VDC	13.5VAC
3	35A5	87VAC	109VDC	0V	0V	0V	0V	7.2VDC	48VAC
4	35Y4	117VAC	113VAC	0V	113VAC	0V	0V	113VDC	87VAC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14B6	12K	287K	5MEG	113K	INF	INF	113K	0K
2	35A5	41K	140K	140K	INF	0K	430K	92K	12K
3	35A5	72K	140K	140K	0K	0K	410K	92K	41K
4	35Y4	100K	97K	INF	97K	INF	0K	140K	72K

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			RMA BASE TYPE	INSTALLATION NOTES
		AIRCRAFTLE PART No.	STANDARD REPLACEMENT			
1	AF & Phase Inv.	14B6	35A5	6A4	6A4	
2	Power Output	35A5	35A5	6A4	6A4	
3	Rectifier	35Y4	35Y4	5AL	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		AIRCRAFTLE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
5A	30 CAP.	125.019	PRSA150-40-	EZ3315	2N513	DSB-2X30-150 TA-330 Filter - Red
6	150		684-05	DF685	TP426	S-6-05 TC-15 Line Isolation
7	30		684-06	DF685	TP408	S-6-005 TC-25 35A5 Plate Bypass
8	.005		484-02	DF482	TP423	S-4-02 TC-12 Audio Coupling
9	.02		484-01	DF481	TP421	S-4-01 TC-11 Tone Compensation
10	.01		484-02	DF482	TP423	S-4-02 TC-12 Audio Coupling
11	.25		484-.25	DF425	TP430	S-4-25 TC-28 Audio Plate Decoup.
12	.25		484-.25	DF425	TP430	S-4-25 TC-28 Audio Cath. Bypass
13	100		1468-0001	SM511	MC235	MO-5-51 1FP-31 Phono. Coupling

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIRCRAFTLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
14A	500KΩ	MR48	D13-133	M-60-Z		Volume Control
14B	Switch	Not Req.	41	Not Req.		Attach to 14A per instructions
15A	500KΩ	MR48	D13-133	M-60-Z		Tone Control-Late production
15B	1 Meg.	MR53	D13-137	M-63-Z		Attach to 15A per instructions
16	1 Meg.	Not Req.	A	Not Req.		Tone Control-Early production

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		AIRCRAFTLE PART No.	IRC PART No.	
16	100Ω	BT-1-100	Br.-Blk.-Br. Pilot Light Shunt	
17	2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn. Series Phono	
18	4700Ω	BTS-4700	Yl.-Yl.-Red. Phase Inverter Cathode	
19	100KΩ	BTS-100K	Br.-Blk.-Yl. Plate Load	
20	100KΩ	BTS-100K	Br.-Blk.-Yl. Phase Inverter Cathode	
21	47KΩ	BTS-47K	Yl.-Yl.-Or. Phase Inverter Plate Decoupling	
22	470KΩ	BTS-470K	Yl.-Yl.-Yl. Output Grid	
23	470KΩ	BTS-470K	Yl.-Yl.-Yl. Output Grid	
24	100Ω	BT-1-100	Br.-Blk.-Br. Output Cathode	
25	100Ω	BT-1-100	Br.-Blk.-Red. Filter	
26	220KΩ	BTS-220K	Red-Red-Yl. Line Isolation	

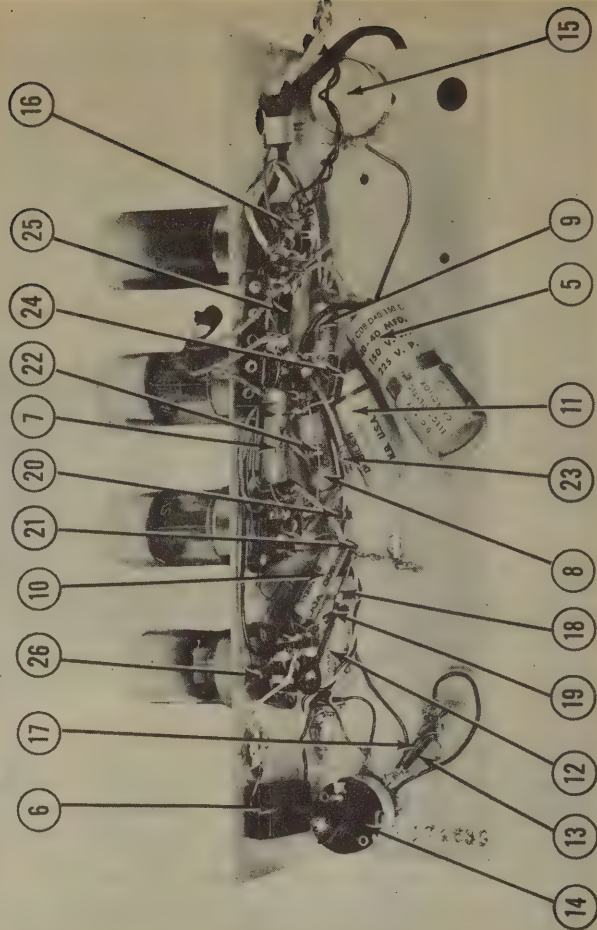
TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		IMPEDANCE	DC RES.	AIRCRAFTLE PART No.	THORPAR'N PART No.	
27	2000Ω	3.3Ω	280Ω	.35Ω	A-3856†	†Universal transformer
	CT				C-11.039	

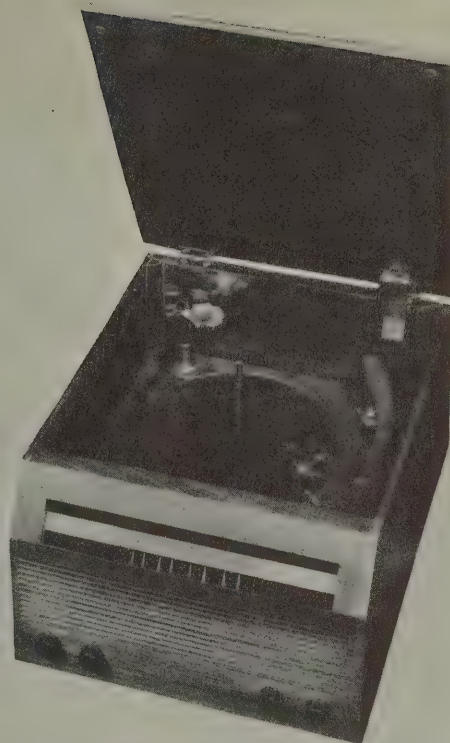
SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		AIRCRAFTLE PART No.	JENSEN PART No.	
28A	FIELD		ST-109	
B	PM		Mod. P6-W	
	CONE DIA.		C-11.038	Alternate Speaker
29	6"		NOT READING	REPLACEABLE - USE COMPLETE SPEAKER UNIT.

CHASSIS—BOTTOM VIEW



AIRCASTE MODELS 6541, 6547



MODEL 6547

TRADE NAME	Aircastle, Models 6541 (Manual Record Player), 6547 (Automatic Record Player)					
SUPPLIER	Spiegel Inc., 1061 W. 35th St., New York, N.Y.					
TYPE SET	AC Operated Combination Auto. Phono.-Superheterodyne Receiver, Self Cont. Loop Ant.					
TUBES (FIVE)	Types, 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.					
POWER SUPPLY	105-125 Volts AC					
TUNING RANGE—BROADCAST	540-1700KC	RATING	.240 Amps. @ 117V AC			
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	Quiet point at high freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
100 MMF.	High side to ant. lead. Low side to chassis.	1720KC	High freq. end (Fully clockwise)	"	A5	" " " "
100 MMF.	"	1500KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

AIRCRAFTLE
MODELS 6541, 6547

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		AIRCRAFTLE PART No.	STANDARD REPLACEMENT	
1	Converter	14Q7	6AL	
2	IF AMP.	14A7	8V	
3	Det.-AVC- μ F	14B6	8W	
4	Power Output	50A5	6AA	
5	Rectifier	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		AIRCRAFTLE PART No.	AERVOX PART No.	CORNELL DUBIER PART No.	MALLORY PART No.	
6A	40	A25.019	FRSA150-40	BRL4415	2NE11	M-2X40-150
7	150		484-05	DT485	TP426	S-4-05
8	400		484-02	DT482	TP423	S-4-02
9	400		484-02	DT482	TP423	S-4-02
10	600		694-005	DT605	TP408	S-6-005
11	600		484-05	DT485	TP426	S-4-05
12	200		484-02	DT482	TP423	S-4-02
13	200		484-02	DT482	TP423	S-4-02
14	400		1468-00025	SW5T25	MC240	NO.5-325
15	250		1468-00025	SW5T25	MC240	NO.5-325
16	500		1468-00005	SW5Q5	MC225	NO.5-45
17	50					

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIRCRAFTLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	500K Ω	A-9.066	MR48	D13-123	M-60-Z	Volume Control
18B	500K Ω	Not Req.	M25	41	Not Req.	Attach to 18A per instructions
19A	100K Ω	A-9.068	MR39	D13-128	M-51-Z	Tone Control
19B	100K Ω	Not Req.	Not Req.	A	Not Req.	Attach to 19A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		AIRCRAFTLE PART No.	IRC PART No.	
20	22K Ω			Red-Red-Or. Oscillator Grid
21	10 Meg.	BTS-22K	BTS-10 Meg.	Br.-Blk.-Blue AVC Network
22	3.3 Meg.	BTS-3.3 Meg.	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
23	10 Meg.	BTS-10 Meg.	BTS-10 Meg.	Br.-Blk.-Blue 1st Af Grid
24	470K Ω	BTS-470K	BTS-470K	Yl.-Vi.-Yl. 1st Af Plate Load
25	470K Ω	BTS-470K	BTS-470K	Yl.-Vi.-Yl. Output Grid
26	150 Ω	5M-2-150	5M-2-150	Br.-Grn.-Br. Output Cathode
27	220K Ω	BTS-220K	BTS-220K	Red-Red-Yl. Line Isolation
28	100K Ω	BT-2-1000	BT-2-1000	Br.-Blk.-Red Filter
29	2.2 Meg.	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn. Series Photo.

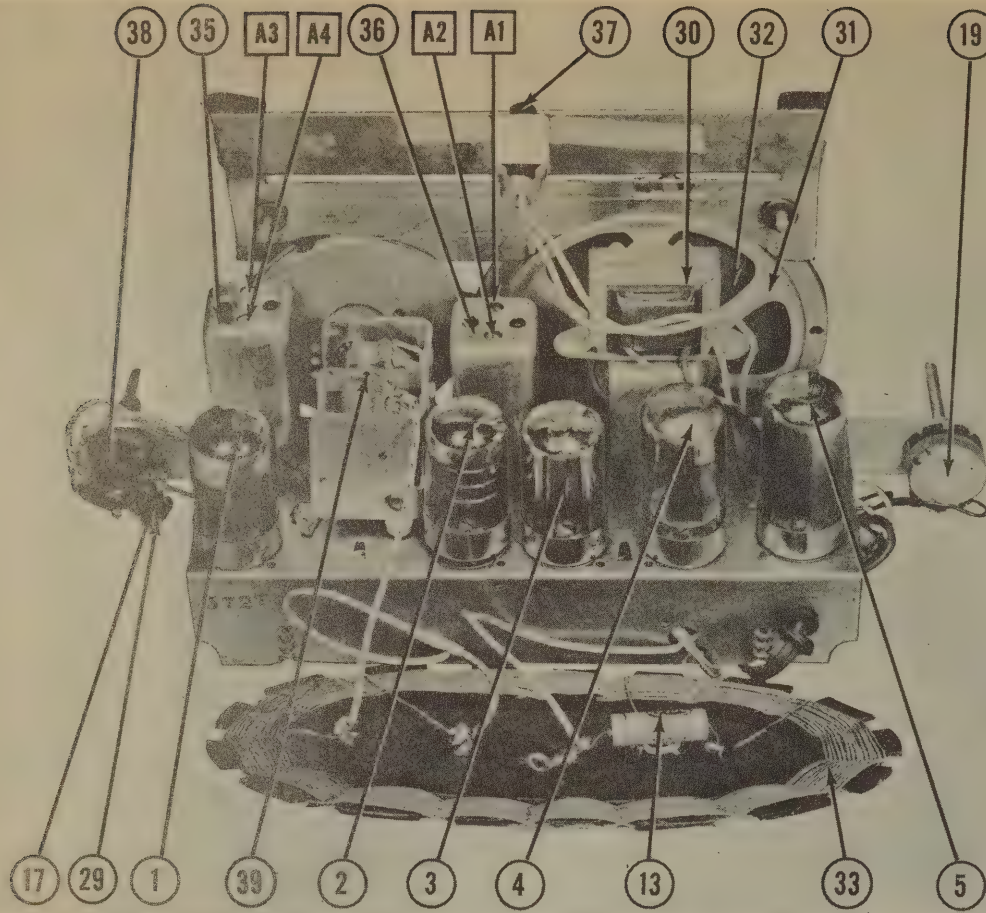
TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA		INSTALLATION NOTES
		AIRCRAFTLE PART No.	THORNDYKE PART No.	
30	1700W 3.3 Ω	Part of B-11.037	T-22845	

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		AIRCRAFTLE PART No.	JENSEN PART No.	
31	FIELD VC IMP. 3-30 PM	B-11.037	ST-105	
32	CONE DIA. VC DIA. 4-5/8" 9/16"		Mod. P5-X	

NOT READILY REPLACEMENTABLE—USE COMPLETE SPEAKER UNIT.



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIRCASTLE PART No.	WEISSNER PART No.	
33	Loop Ant.	02	1.32	B5-006	14-1040*	*add 50 MMFD. cap. from grid to high side tuning cap.
34	Osc. Coil	.82	6.22	B2-192	16-6666	
35	Input IF	21.52	212	C2-191-1	16-6666	
36	Output IF	14.22	14.52	C2-191-2	16-6667	

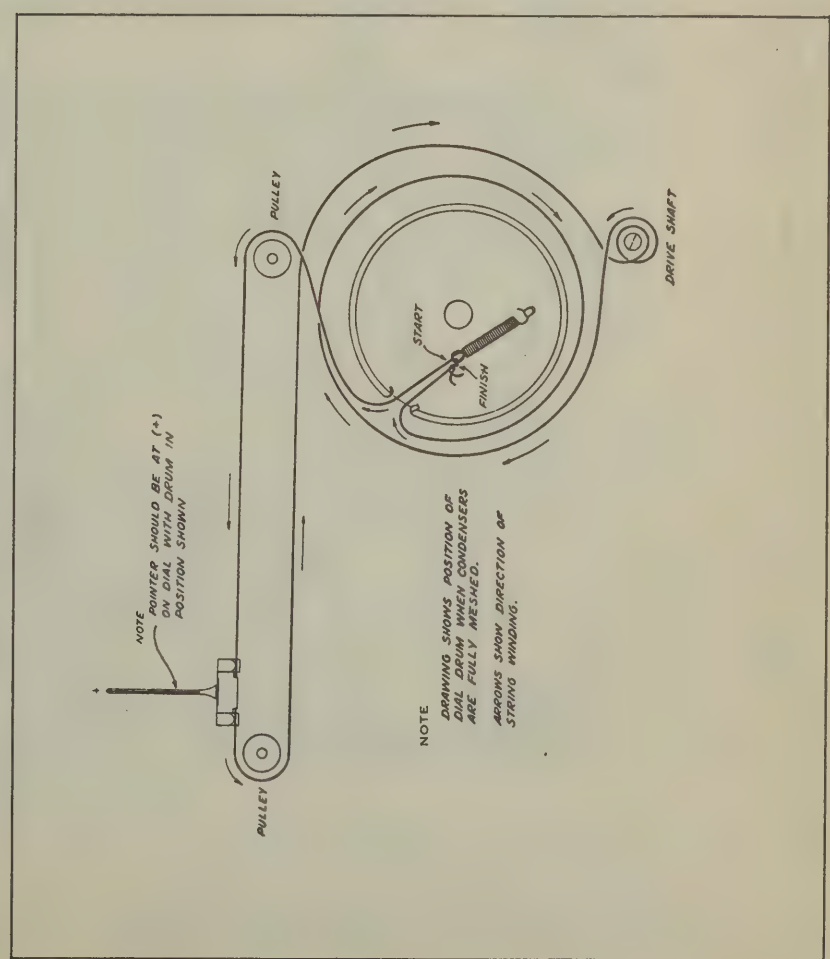
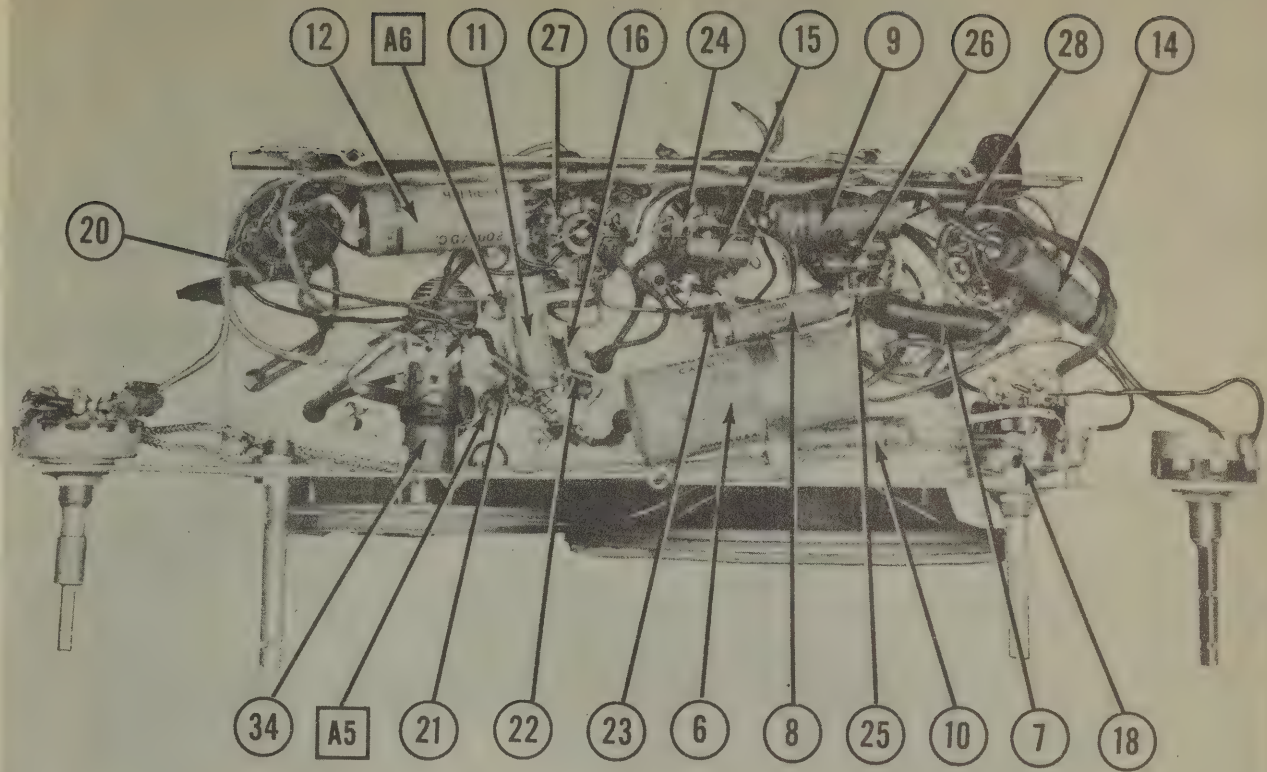
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIRCASTLE PART No.	WEISSNER PART No.	
37	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
38	Switch		
39	Tuning Cap.		2 Gang Variable Cap.

CHASSIS—BOTTOM VIEW





AIR KNIGHT MODEL N5-RD291

TRADE NAME	Air Knight, Model N5-RD291		
SUPPLIER	Butler Bros., Randolph & Canal Sts., Chicago, Ill.		
TYPE SET	AC Operated Phono-Radio Combination Superheterodyne with Loop Antenna		
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.		
POWER SUPPLY	110-120 Volts AC		
TUNING RANGE—BROADCAST	540-1720KC	RATING	.280 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. open.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MMFD	High side to ant. lug. Low side to ext. gnd. lug.	1500KC	1500KC	"	A5	Adjust for maximum output.
200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove the screw type volume, tuning and phono-control knobs.
2. Unsolder the phono-motor leads from terminal strip on chassis.
3. Unsolder phono-pickup leads from terminal strip on chassis.
4. Remove four wood screws holding motor board to cabinet. Tilt phono-motor board up.
5. Remove lock nut holding phono-switch to cabinet. Remove phono-switch from cabinet.
6. Remove two hex head machine screws holding chassis to cabinet.
7. Remove four staples holding antenna loop to cabinet.
8. Remove chassis and antenna loop from cabinet.

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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

AIR KNIGHT
MODEL NS-RD291

CHASSIS—TOP VIEW

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		AIR KNIGHT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	
6A	50 CAP.	150	PRSA150-50	BRD3515	M-5030-150	TA-530 Filter - Green
7	30	30	484-05	TP435	S-4-05	TC-15 Line Filter
8	.05	400	484-05	TP435	S-4-05	TC-15 Output Plate Bypass
9	.01	400	484-01	TP431	S-4-01	TC-11 Audio Coupling
10	.01	400	484-01	TP431	S-4-01	TC-11
11	.05	200	484-05	TP435	S-4-05	TC-15 AVC Filter
12	.005	100	484-005	TP408	S-6-005	TC-25 Tone Compensation
13	250	500	1488-00025	SW5125	M0.5-325	1FM-325 Audio Plate Bypass
14	250	500	1488-00025	SW5125	M0.5-325	1FM-325 IF Bypass Diode
15	50	500	1488-00005	SW505	M0.5-45	1FM-45 Osc. Grid Capacitor
16	10	500	1488-00001	SW501	M0.5-41	1FM-41 Fixed Trimmer

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIR KNIGHT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	1 Meg. B Shaft	1	MK402	D13-137	AM-63-Z	Volume Control
18	C Switch		Not Req.	E 41	KSS-3 SH-A	Attach to 17A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		AIR KNIGHT PART No.	MALLORY PART No.	IRC PART No.	IRC PART No.	
18	20KΩ			BTS-22K	Red-Blk.-Or.	Oscillator Grid
19	1000Ω			BTS-1000	Br.-Blk.-Red	Parasitic Suppressor
20	150Ω			BM-1-150	Br.-Grn.-Br.	IF Cathode
21	2 Meg.			BTS-2-2 Meg.	Red-Blk.-Grn.	AVC Network
22	10 Meg.			BTS-10 Meg.	Br.-Blk.-Blue	AF Grid
23	220KΩ			BTS-220K	Red-Red-Vl.	AF Plate Load
24	500KΩ			BTS-470K	Grn.-Blk.-Vl.	Output Grid
25	150Ω			BM-1-150	Br.-Grn.-Br.	Output Cathode
26	1000Ω			ET-2-1000	Br.-Blk.-Red	Filter

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.		AIR KNIGHT PART No.	THORDARN PART No.	UTAH PART No.	
27	19902 3.25Ω	1862 .92		TO-10000	A-3876*	T22845*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

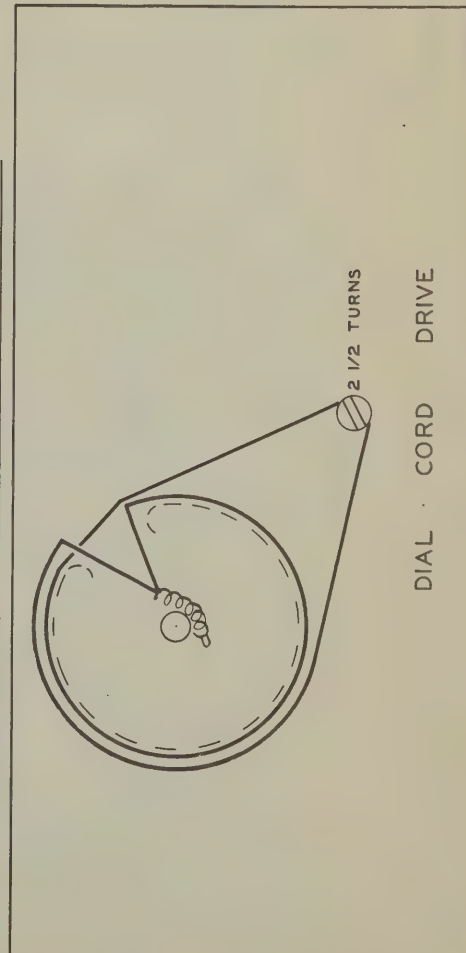
ITEM No.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC INT.		AIR KNIGHT PART No.	JENSEN PART No.		
28	PRI. 3.25Ω			SR-10000	ST-113		
29	CONC DIA. 1/2"	VC DIA. 1/2"			Mod. PA-X		
	3-15/16"			NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT			

R F COILS

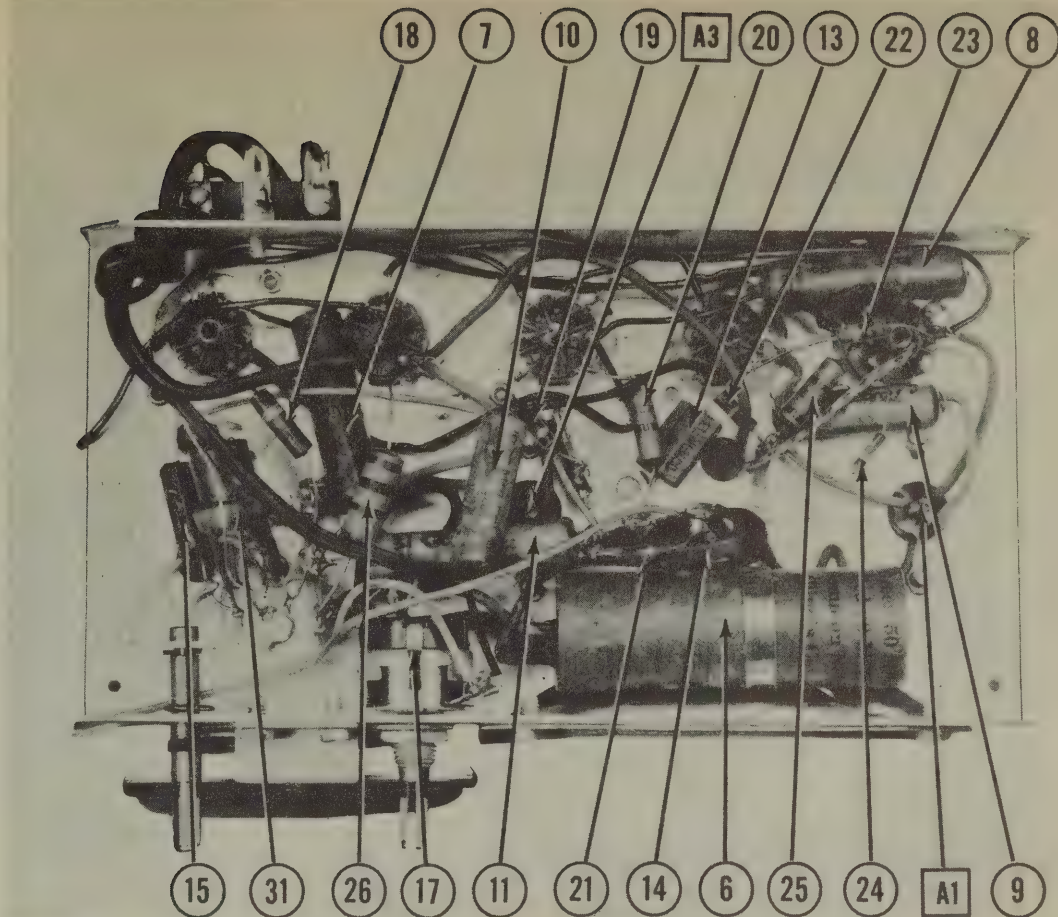
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	AIR KNIGHT PART No.	MEISSNER PART No.
30	Loop Ant.	.1Ω	.3Ω		
31	Osc. Coil	14.5Ω	6.5Ω		14-1040
32	Input IF	16.5Ω	15Ω		16-5740
33	Output IF		16Ω		16-5742

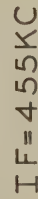
MISCELLANEOUS

ITEM No.	PART NAME	AIR KNIGHT PART No.	NOTES
34	Switch 2 Gang Var. Cap.		
35	Radio-Phono 17-460 MTF, 29-192 MTF		



CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BB6	18K Ω	5 Ω	32 Ω	23 Ω	70K Ω	70K Ω	2.9MEG Ω
2	12BA6	2.9MEG Ω	0 Ω	23 Ω	12 Ω	70K Ω	160 Ω	
3	12AT6	10MEG Ω	0 Ω	12 Ω	0 Ω	0 Ω	800K Ω	275K Ω
4	50B5	490K Ω	145 Ω	32 Ω	82 Ω	70K Ω	70K Ω	490K Ω
5	53W4	INF	INF	115 Ω	82 Ω	115 Ω	91 Ω	70K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



AIR KNIGHT MODEL CA-500

TRADE NAME Air Knight, Model CA-500
SUPPLIER Butler Bros., Randolph & Canal Sts., Chicago 80, Ill.
TYPE SET AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (FIVE) Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.

POWER SUPPLY 110-120 Volts AC-DC

TUNING RANGE—BROADCAST 540-1720KC

RATING .270 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MMFD.	High side to ext. ant. lug. Low side to ext. gnd. lug.	1500KC	1500KC	"	A5	Adjust for maximum output.
200MMFD.	"	1400KC	Tune for maximum output.	"	A6	" " " "

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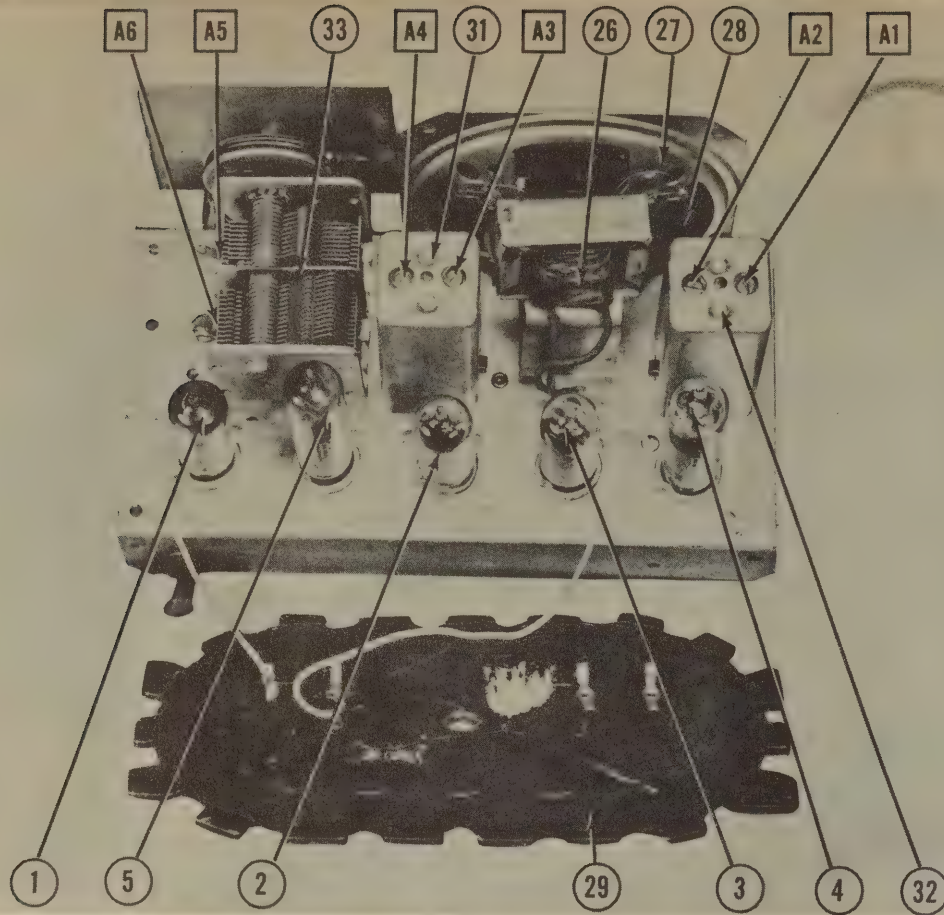
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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

AIR KNIGHT
MODEL CA-500

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT.	AIR KNIGHT PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.
6A	50	150		PRSA150-50-30	BRD3515	2N520	M-5030-150	TA-530
B	30	150						
7	.05	400		484-05	DT435	TP426	S-4-05	TC-15
8	.05	200		484-05	DT435	TP426	S-4-05	TC-15
9	.01	400		484-01	DT431	TP421	S-4-01	TC-11
10	.01	400		484-01	DT431	TP421	S-4-01	TC-11
11	.05	400		484-05	DT435	TP426	S-4-05	TC-15
12	250	500		1468-00025	5W5T25	M2240	M0.5-325	1FM-325
13	250	500		1468-00025	5W5T25	M2240	M0.5-325	1FM-325
14	50	500		1468-00005	5W5Q5	M2225	M0.5-45	1FM-45
15	10	500		1468-00001	5W5Q1	M2215	M0.5-41	1FM-41

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES	
	RESISTANCE	WATTS	AIR KNIGHT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.		
16A	1 Meg.	1	VC-10103	MK402	D13-137	AM-63-Z	Volume Control	
B	Shaft		Not Req.	Not Req.	E 41	KSS-3	Attach to 16A per instructions	
C	Switch			M26		SW-A		

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	AIR KNIGHT PART No.	IRC PART No.		
17	22K	1/2		BTS-22K	Red-Red-Or.	Oscillator Grid
18	2.2 Meg.	1/2		BTS-2.2 Meg.	Red-Red-Grn.	AVC Network
19	10 Meg.	1/2		BTS-10 Meg.	Br.-Blk.-Blue	AF Grid
20	270K	1/2		BTS-270K	Red-Vi.-Vi.	AF Plate Load
21	500K	1/2		BTS-470K	Grn.-Blk.-Vi.	Output Grid
22	180K	2		BW-2-180	Br.-Gray-Br.	Output Cathode
23	820K	1/2		BTS-820	Gray-Red-Br.	Filter
24	30K	1/2		BW-1-33	Or.-Blk.-Blk.	Rectifier Ballast
25	150K	1/2		BW-1-150	Br.-Grn.-Br.	IF Cathode

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	AIR KNIGHT PART No.	STANCOR PART No.	
26	19900	3.25Ω 188Ω .9Ω	TO-10000	A-3876*	*Bend mounting tabs down, file out slots and mount on original bracket.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

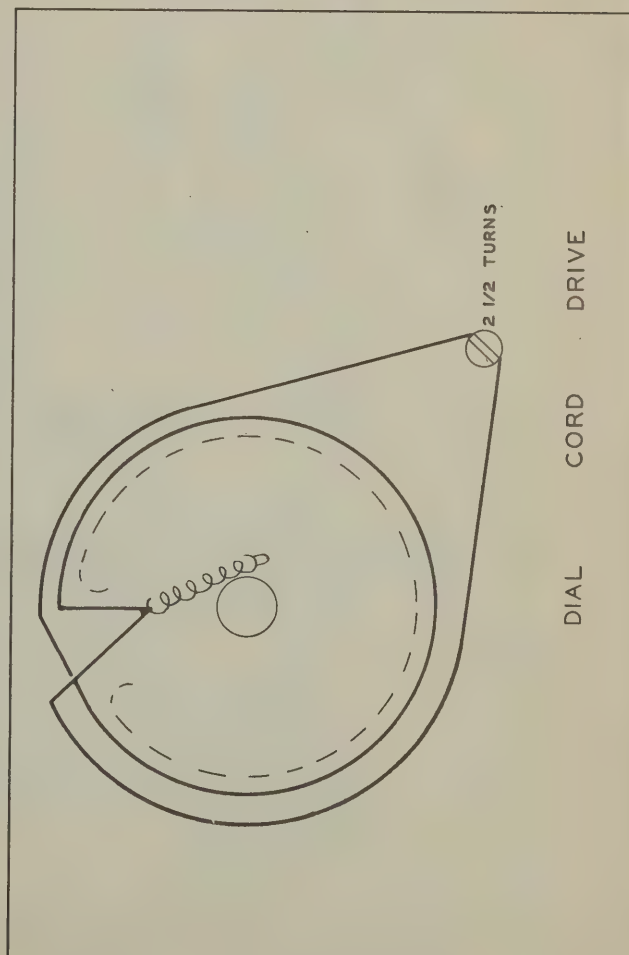
ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		AIR KNIGHT PART No.	JENSEN PART No.	
27	FIELD PH		ST-113	
	VC IMP.		Mod. P4-X	
28	3-15/16" CONE DIA.	SR-10000		
	1/2"	NOT READILY REPLACABLE—USE COMPLETE SPEAKER UNIT		

R F COILS

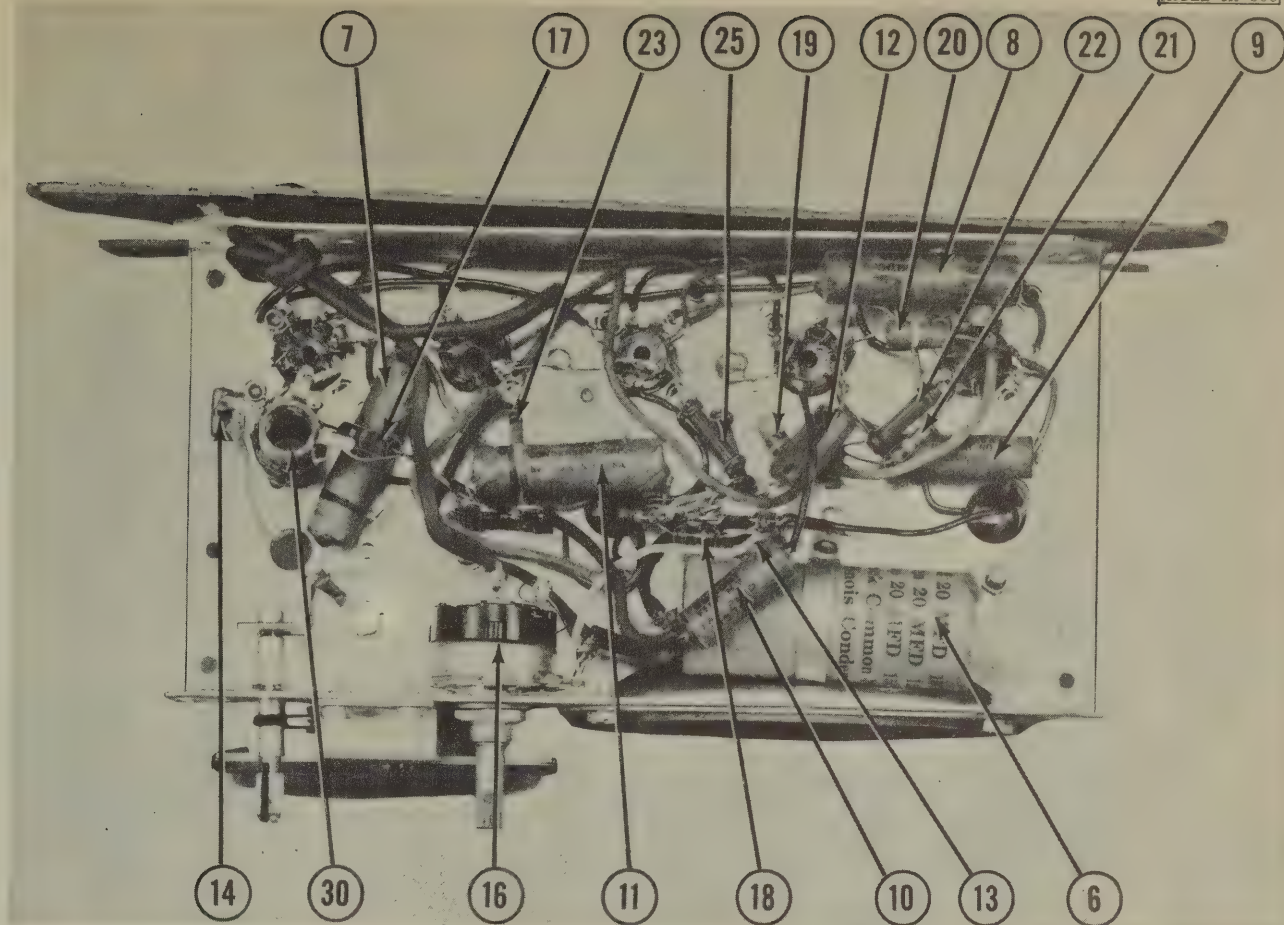
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	AIR KNIGHT PART No.	MEISSNER PART No.
29	Loop Ant.	.13	32		
30	Osc. Coil	20Ω	42	TS-10000	14-1040
31	Input IF	19Ω	20Ω	TS-10001	16-6658
32	Output IF		19Ω		16-6660

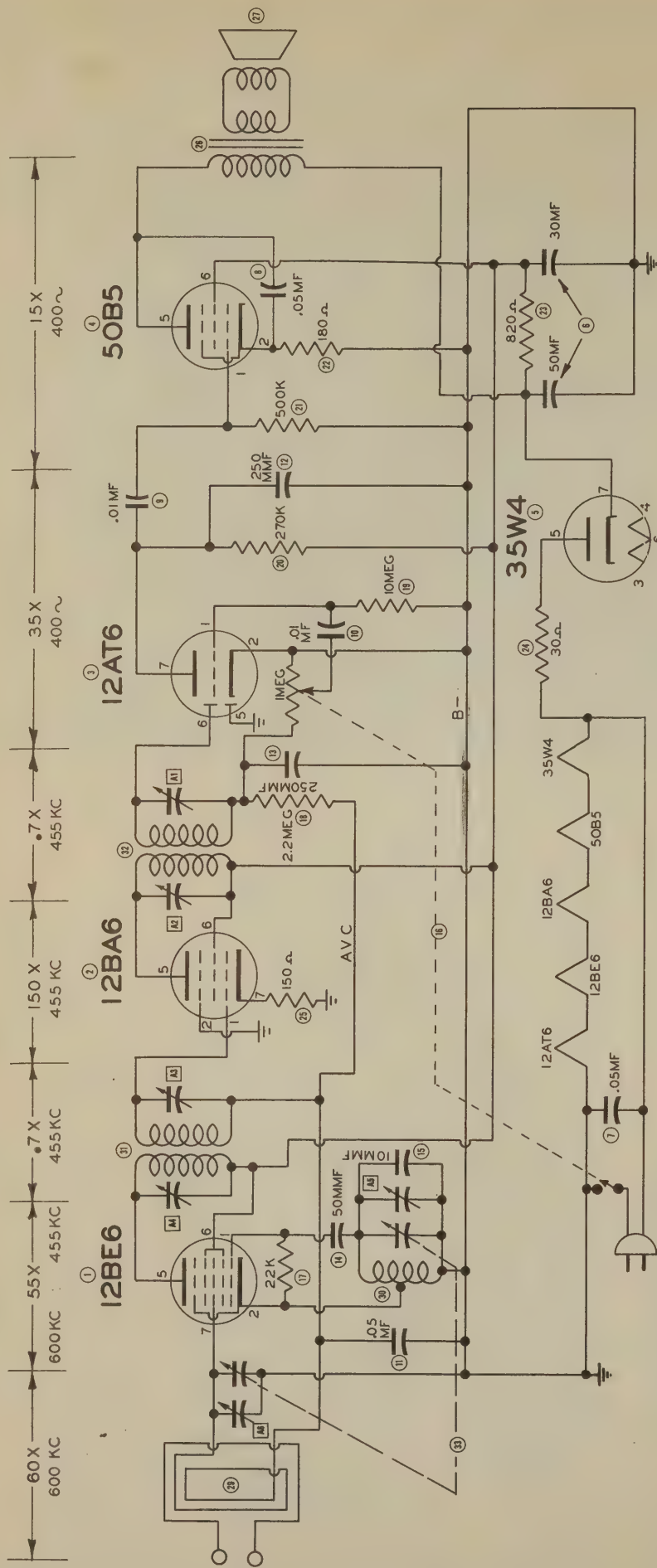
MISCELLANEOUS

ITEM No.	PART NAME	AIR KNIGHT PART No.	NOTES
33	2 Gang Var. Cap.		(20-469 MTF, 28-192 MTF)



CHASSIS—BOTTOM VIEW





IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-6VDC	0V	35VAC	23VAC	100VDC	100VDC	0V
2	12BA6	0V	0V	23VAC	10VAC	100VDC	100VDC	17VDC
3	12AT6	-6VDC	0V	10VAC	0V	2VDC	42VDC	0V
4	50B5	0V	75VDC	35VAC	83VAC	115VDC	100VDC	0V
5	35W4	117VAC	0V	117VAC	83VAC	113VAC	111VAC	122VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	20KΩ	25Ω	32Ω	22Ω	20KΩ	20KΩ	3 MEGΩ
2	12BA6	5 MEGΩ	0Ω	22Ω	10Ω	20KΩ	20KΩ	140Ω
3	12AT6	10MEGΩ	0Ω	10Ω	0Ω	0Ω	875KΩ	320KΩ
4	50B5	520KΩ	150Ω	32Ω	73Ω	20KΩ	20KΩ	520KΩ
5	35W4	100Ω	1NΩ	100Ω	73Ω	130Ω	94Ω	20KΩ

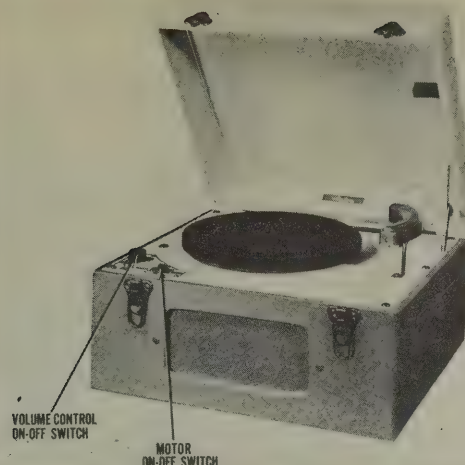
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-4

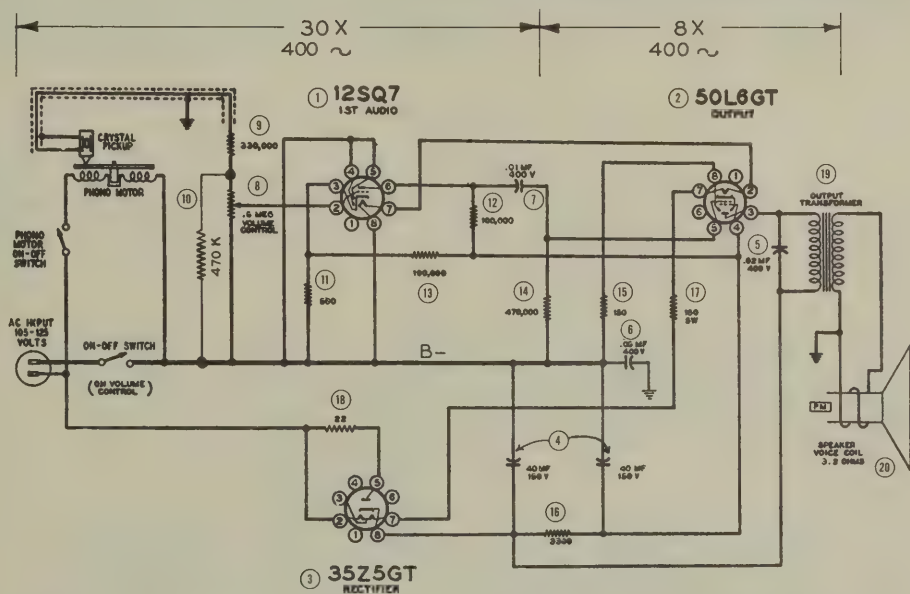
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



AIRLINE MODEL 74BR-916B

TRADE NAME Airline, Model 74BR-916B
MANUFACTURER Montgomery Ward, 619 Chicago Ave., Chicago, Ill.
TYPE SET AC Operated Portable Record Player with Three Tube Amplifier & Speaker
TUBES (THREE) Types, 12SQ7GT/G AF Amp., 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY 105-125 Volts AC **RATING** .230 Amp. @ 117 Volts AC



477-5

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SQ7GT/G	0V _a	±16V _{DC}	±9V _{DC}	0V _a	0V _a	85V _{DC}	11V _{AC}	0V _a
2	50L6GT	0V _a	11V _{AC}	125V _{DC}	120V _{DC}	0V _a	0V _a	58V _{AC}	7.6V _{DC}
3	35Z5GT	0V _a	117V _{AC}	109V _{AC}	0V _a	113V _{AC}	135V _{AC}	84V _{AC}	135V _{DC}

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SQ7GT/G	INF.	210 K _Ω	490 _Ω	0 _Ω	0 _Ω	140 K _Ω	10 _Ω	0 _Ω
2	50L6GT	INF.	10 _Ω	55 K _Ω	55 K _Ω	485 K _Ω	1N _F	54 _Ω	130 _Ω
3	35Z5GT	INF.	230 _Ω	240 _Ω	INF.	250 _Ω	55 K _Ω	205 _Ω	55 K _Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt. AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.

4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS TUBES

ITEM No.	USE	REPLACEMENT DATA			RMA BASE TYPE	INSTALLATION NOTES
		AIRLINE PART No.	STANDARD REPLACEMENT			
1	AF Amp.	125Q7GT/G	125Q7GT/G	8Q		
2	Power Output	50L8GT	50L8GT	7AC		
3	Rectifier	35Z5GT	35Z5GT	6AD		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND NOTES
		AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	
4A	CAP. 150	BEA-8C-114151	AF88D	UP4415	DP214	EL-25
B	40	150				
5	.02	BEA-8D-10774	484-02	DT4S2	TP423	TC-12
6	.05	BEA-8D-10813	484-05	DT4S5	TP426	TC-15
7	.01	BEA-8D-10761	484-01	DT4S1	TP421	TC-11

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIRLINE PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
8A	500KΩ	BEA-10A-11377	PK401	D13-133	AM-60-Z	Volume Control
B	Shunt	Not Req.	Not Req.	E	KSS-3	Attach to 8A per instructions
C	Switch	Not Req.	Not Req.	41	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		AIRLINE PART No.	MALLOY PART No.	IRC PART No.	
9	330KΩ	BEC-9B1-28	BTS-330K		Or.-Or.-Yl. Series Phono
10	470KΩ	BEC-9B1-29	BTS-470K		Yl.-Yl.-Yl. Volume Control Shunt-See Note 1
11	560Ω	BEC-9B1-59	BTS-560		Gm.-Blue-Br. 1st AF Cathode
12	100KΩ	BEC-9B1-86	BTS-100K		Br.-Blk.-Yl. 1st AF Plate Load
13	100KΩ	BEC-9B1-25	BTS-100K		Br.-Blk.-Yl. Bleeder Network
14	470KΩ	BEC-9B1-29	BTS-470K		Yl.-Yl.-Yl. Output Grid
15	150Ω	BEC-9B1-8	BW-150		Br.-Gm.-Br. Output Cathode
16	3300Ω	BEC-9B1-16	BTS-3300		Or.-Or.-Red Filter
17	160Ω	A-9D-12577	AB-150		Line Dropping
18	22Ω	BEC-9B1-3	BW-2-22		Red-Red-Blk. Rectifier Ballast

Note 1-Not used in all models.

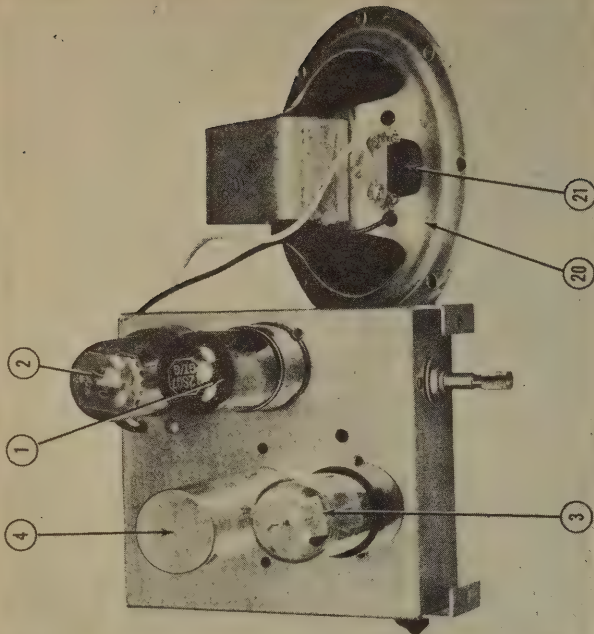
TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		AIRLINE PART No.	STANCOR PART No.	THORDAR'N PART No.	
19	IMPEDANCE PRI. SEC. 2150Ω 3.45Ω 190Ω	BEE-120-10074-3	A-3876	TT22845	

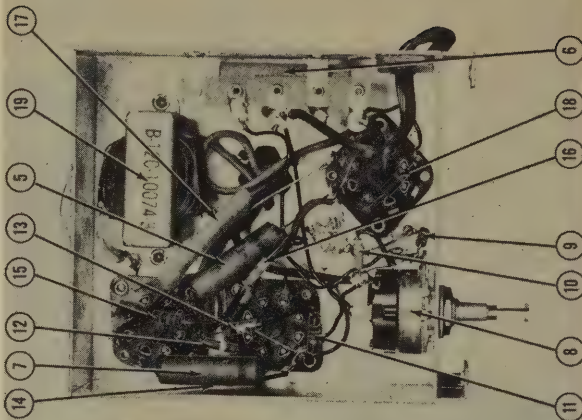
SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA			INSTALLATION NOTES
		AIRLINE PART No.	JENSEN PART No.		
20A	FIELD VC IMP. 3.45Ω	BEB-18A-10952	ST-105		
B	3.45Ω	BEB-18A-11381	Mod. P5-X		Alternate Speaker.
21	CONE DIA. 1/2"	NOT READILY REPLACEABLE	USE COMPLETE SPEAKER UNIT.		

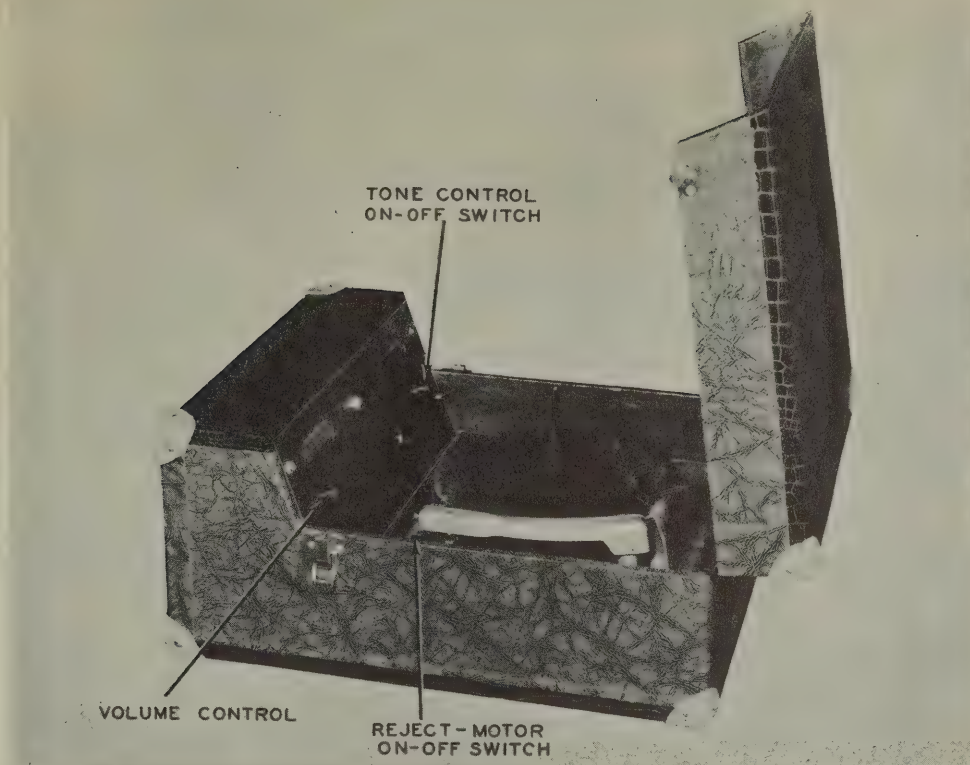
CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



APEX
MODEL 192A



APEX MODEL 192A

TRADE NAME	Apex, Model 192A
MANUFACTURER	Apex Industries, 192 Lexington Ave., New York, N.Y.
TYPE SET	AC Operated Phonograph with 3 Tube Amplifier & Speaker.
TUBES (THREE)	Types, 6SN7GT AF Amp., 6V6GT/G Power Output, 6X5GT Rectifier.
POWER SUPPLY	110-120 Volts AC
	RATING .320 Amp. @ 117V AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SN7GT	OV.	52V _{DC}	22V _{DC}	OV.	55V _{DC}	22V _{DC}	64V _{DC}	OV.
2	6V6GT/G	OV.	OV.	268V _{DC}	280V _{DC}	OV.	OV.	64V _{AC}	15V _{DC}
3	6X5GT	OV.	64V _{AC}	240V _{AC}	OV.	240V _{AC}	OV.	OV.	300V _{DC}

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SN7	280K Ω	480K Ω	1000 Ω	280K Ω	480K Ω	1000 Ω	.1 Ω	0 Ω
2	6V6GT/G	0 Ω	0 Ω	150K Ω	150K Ω	250K Ω	220K Ω	.1 Ω	250 Ω
3	6X5GT	0 Ω	.1 Ω	230 Ω	0 Ω	230 Ω	INF	0 Ω	150K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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APEX
MODEL 192A

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

APEX
MODEL 192A

CHASSIS—TOP VIEW

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		APEX PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	AF Amp.	6SN7GT	6SN7GT	8BD	
2	Power Output	6V6GT/G	6V6GT/G	7AC	
3	Rectifier	6X5GT	6X5GT	6S	

ITEM No.	RATING	CAP.	VOLTS	REPLACEMENT DATA			IDENTIFICATION CODES AND INSTALLATION NOTES
				APEX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
4A	20	20	400	AF2222J	UP7DJ54	FF339	EL-322
B	10	10	400				
C	10	25	25				
5	.006	600	600	684-006	DT8D6	TP409	S-6-006
6	.005	600	600	684-005	DT8D5	TP408	TC-26
7	.01	600	600	684-01	DT6S1	TP410	TC-25
8	.01	600	600	684-01	DT6S1	TP410	TC-11

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		APEX PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
9A	250K Ω		UN149	D11-130	M-55-S	Volume Control
B	Shart		Not Req.	D13-128	Not Req.	Attach to 9A per instructions
10A	100K Ω		Not Req.	41	SW-A	Tone Control
C	Switch		PE26			Attach to 10A per instructions

RESISTORS

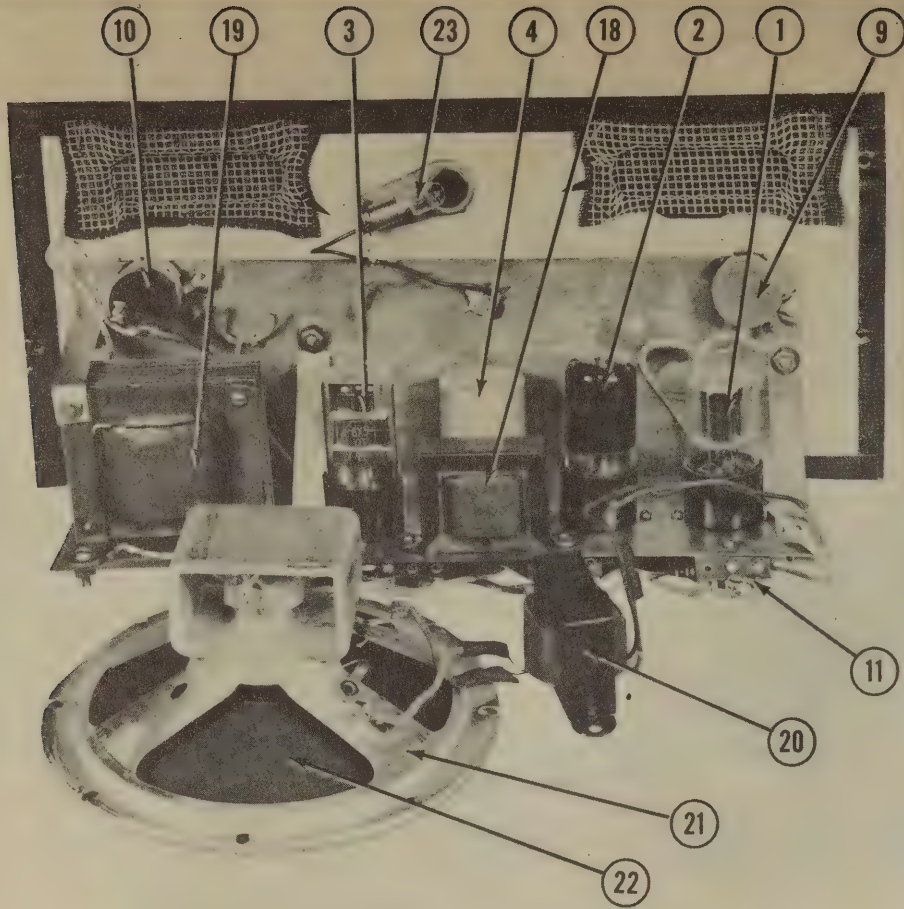
ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		APEX PART No.	IRC PART No.	STANCOR PART No.	
11	250K Ω		BTS-270K	Red-Grn.-Yl. AF Grid	
12	2000 Ω		BTS-2200	Red-Blk.-Red AF Cathode	
13	2200 Ω		BTS-2200	Red-Red-Red AF Cathode	
14	250K Ω		BTS-270K	Red-Grn.-Yl. AF Plate Load	
15	250K Ω		BTS-270K	Red-Grn.-Yl. Phase Inverter Plate Load	
16	330 Ω		BW-1-330	Or.-Or.-Br. Output Cathode	
17	820K Ω		BTS-270K	Red-Grn.-Yl. Feedback	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA		INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 γ)	APEX PART No.	THORDARSON PART No.	
18	.043A	320 Ω	5 Henries	C-1706*	T20053†	*Use 2 in mounting holes provided. †Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	APEX PART No.	STANCOR PART No.	
19	117V AC @ .32A	480V CT @ .043A	6.4V AC @ 1.8A	P-6297	T22R00	Mount in cutout provided.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		APEX PART No.	THORDARIN PART No.	
20	4700Ω 3.2Ω 275Ω	PRI. SEC.	.65Ω	A-38771	T229461	†Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.		APEX PART No.	JENSEN PART No.	
21	PM	3.2Ω			ST-110	
22	CONE DIA.	VC DIA.			Mod. P6-V	
	5-7/8"	5/8"		NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT		

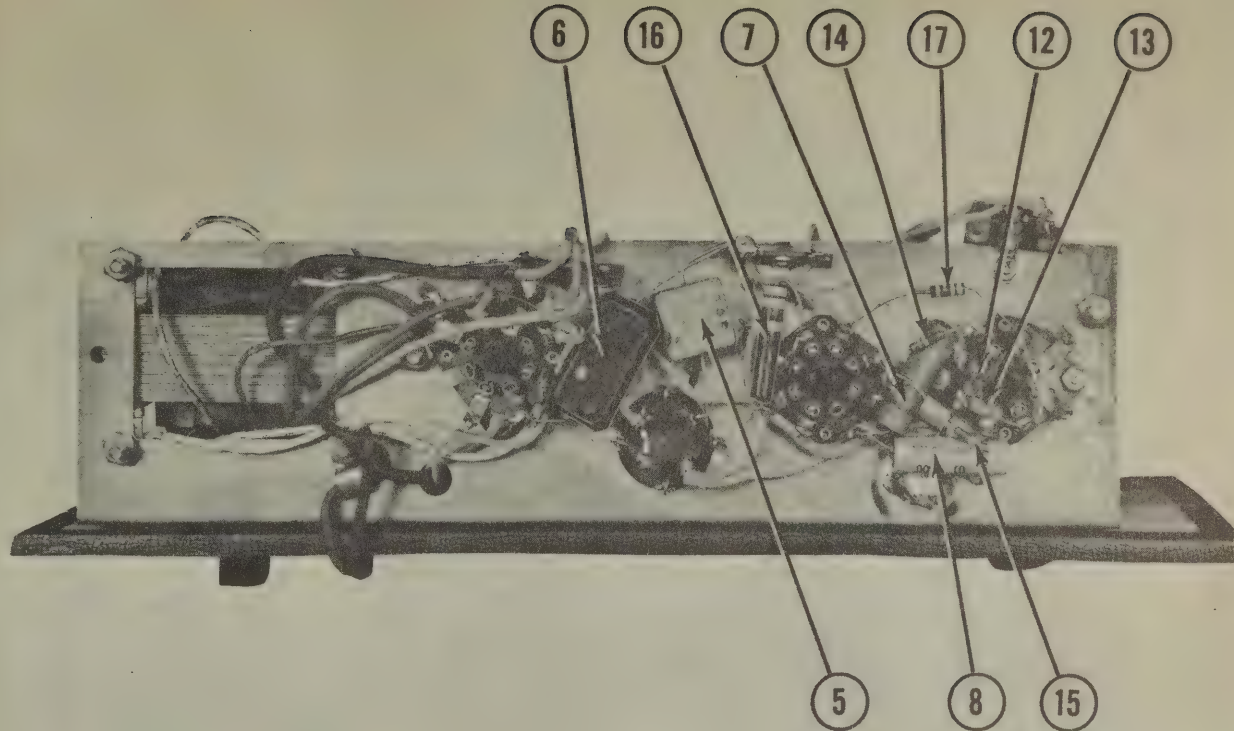
DIAL LIGHT

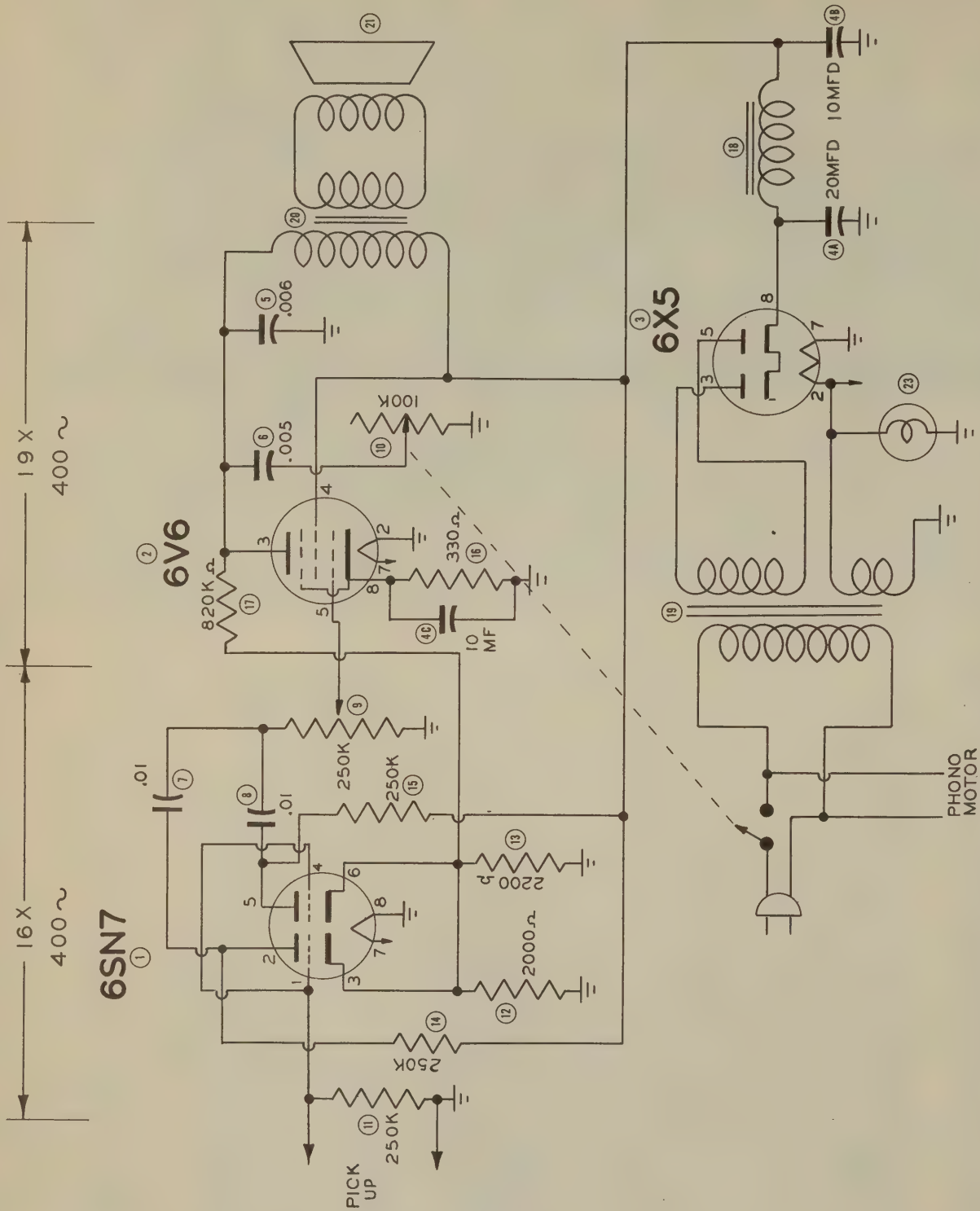
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	APEX PART No.	
23	Screw	6-8	0.25	Blue		Type 46

DISASSEMBLY INSTRUCTIONS

1. Remove five screws holding changer mounting panel. Lift up changer.
2. Unsolder phono-motor leads.
3. Unsolder phono-pickup leads.
4. Remove four screws holding chassis mounting panel.
5. Remove two hex nuts holding output trans. and four hex nuts holding speaker. Remove output trans. and speaker.

CHASSIS—BOTTOM VIEW

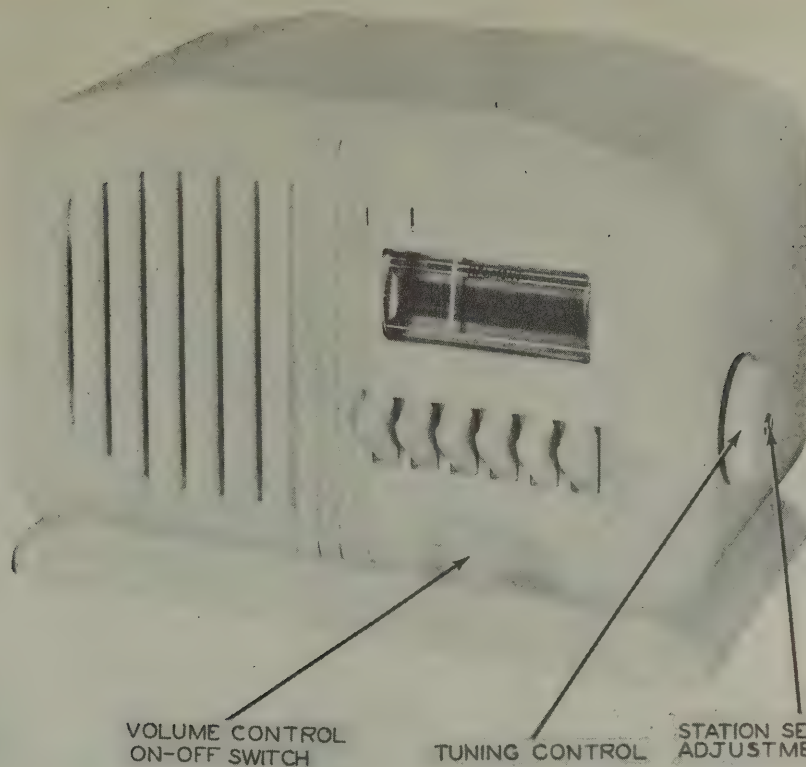




THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

477-6

BELMONT
MODEL A-6D110



BELMONT
MODEL A-6D110

BELMONT MODEL A-6D110

TRADE NAME Belmont, Model A-6D110
MANUFACTURER Belmont Radio Corp., 5921 Dickens Ave., Chicago, Ill.
TYPE SET AC-DC Superhet. - Self Contained Loop Antenna - (6) Pushbutton Tuning
TUBES (SIX) Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 105-125 Volts AC-DC
TUNING RANGE—BROADCAST 535-1650KC

RATING .235 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. Have receiver loop in same relative position as it will be when chassis is in cabinet.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin #8 (signal grid) of 12SA7. Low side to B-.	455KC	High freq. end of dial. (min. cap.).	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. Use isolation transformer if available. If not, isolating capacitor must be connected between generator ground lead and receiver B-. Also decrease dummy ant. to .001 MFD. to prevent excessive hum modulation.
.1 MFD.	"	1650KC	"	"	A5	"
	Loop	1400KC	Tune in 1400 KC signal.	"	A6	Adjust for maximum output. Connect signal generator to loop of few turns of wire and radiate signal into receiver.

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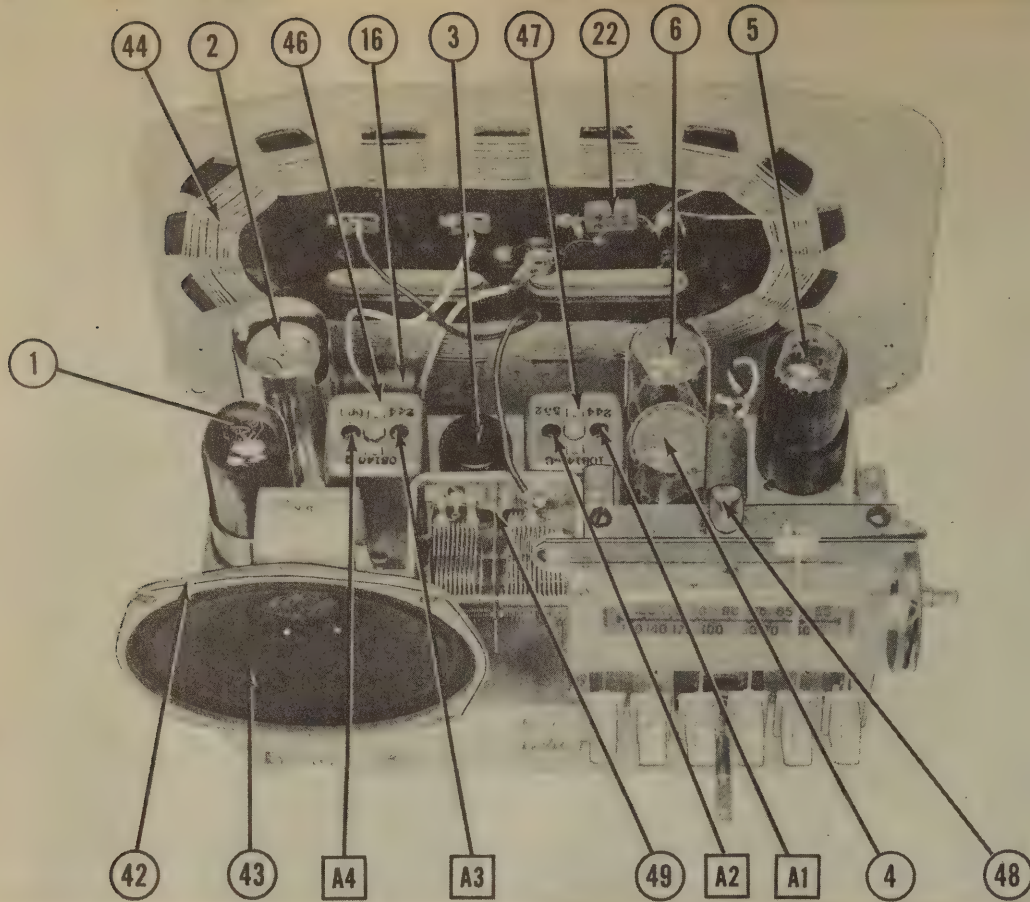
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PARTS LIST AND DESCRIPTIONS

BELMONT
MODEL A-6D110

CHASSIS—TOP VIEW



TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		BELMONT PART No.	STANDARD REPLACEMENT	
1	RF Amp.	12SK7GT	6N	
2	Converter	12SA7GT	8AD	
3	IF Amp.	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7GT	8C	
5	Power Output	35L6GT	7AC	
6	Rectifier	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		BELMONT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	
7A	40	11994	AF844D	UP4CJ1	FF354	EL-224
7B	150					
8	150					
9	400	1001	484-1	DT4P1	TP428	TC-1
10	1002	10026	484-2	DT4S2	TP423	TC-12
11	400	100106	684-104	DT4P4	TP407	TC-24
12	400	100110	484-2	DT4P2	TP429	TC-2
13	400	10025	484-1002	DT602	TP403	TC-22
14	200	1009	484-105	DT4S5	TP426	TC-15
15	200	1006	484-125	DT4P25	TP430	TC-2
16	400	10026	484-102	DT4S2	TP423	TC-12
17	400	10011	484-101	DT4S1	TP421	TC-11
18	500	12935	1468-.0001	SW5T1	MC235	IFM-31
19	500	12939	1468-.00005	SW5Q5	MC225	IFM-45
20	100	1295	1468-.0001	SW5T1	MC235	IFM-31
21	100	1295	1468-.0001	SW5T1	MC235	IFM-31
22	100	1295	1468-.0001	SW5T1	MC235	IFM-31
23	500	129132	1468-.00015	SW5T15	MC236	IFM-315

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		BELMONT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
23A	1 Meg. 1	101211	MX402	D13-137	AM-63-Z	Volume Control
B Shaft		Not Req.	Not Req.	E 41	K3S-3	Attach to 23A per instructions
C Switch					SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		BELMONT PART No.	IRC PART No.		
24	150K Ω	A-9B1-26	BTS-150K	Br.-Grn.-Yl. AVC Network	
25	100 Ω	A-9B1-50	BW-100	Br.-Blk.-Br. RF Cathode	
26	150K Ω	A-9B1-26	BTS-150K	Br.-Grn.-Yl. Line Isolating	
27	5000 Ω	A-9B1-70	BTS-4700	Grn.-Blk.-Red RF Plate Load	
28	100K Ω	A-9B1-25	BTS-100K	Br.-Blk.-Yl. Converter Grid	
29	47K Ω	A-9B1-82	BTS-47K	Yl.-Vi.-Or. Osc. Grid	
30	22 Ω	A-9B1-42	BW-22	Red-Red-Blk. Rectifier Ballast	
31	200 Ω	A-9B2-54	BW-1-220	Red-Blk.-Br. Filter	
32	1200 Ω	A-9B2-63	BW-1-1200	Br.-Red-Red Filter	
33	150 Ω	A-9B1-52	BW-150	Br.-Grn.-Br. IF Cathode	
34	3.3 Meg.	A-9B1-34	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network	
35	47K Ω	A-9B1-23	BTS-47K	Yl.-Vi.-Or. Diode Load	
36	4.7 Meg.	A-9B1-35	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid	
37	220K Ω	A-9B1-27	BTS-220K	Red-Red-Yl. 1st AF Plate Load	
38	150 Ω	A-9B1-52	BW-150	Br.-Grn.-Br. Output Cathode	
39	470K Ω	A-9B1-29	BTS-470K	Yl.-Vi.-Yl. Output Grid	
40	33 Ω		BW-1-33	Or.-Or.-Blk. Line Dropping	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		BELMONT PART No.	THORDARN PART No.	
41	3500Ω	3.2Ω	310Ω	.66Ω		#Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.		BELMONT PART No.	JENSEN PART No.	
42	PM	3.2Ω		114191	ST-1131	
43	CONE DIA.	VC DIA.			Mod. P4-X	†Improvise new mounting bracket.
	4"	1/2"				NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

R F COILS

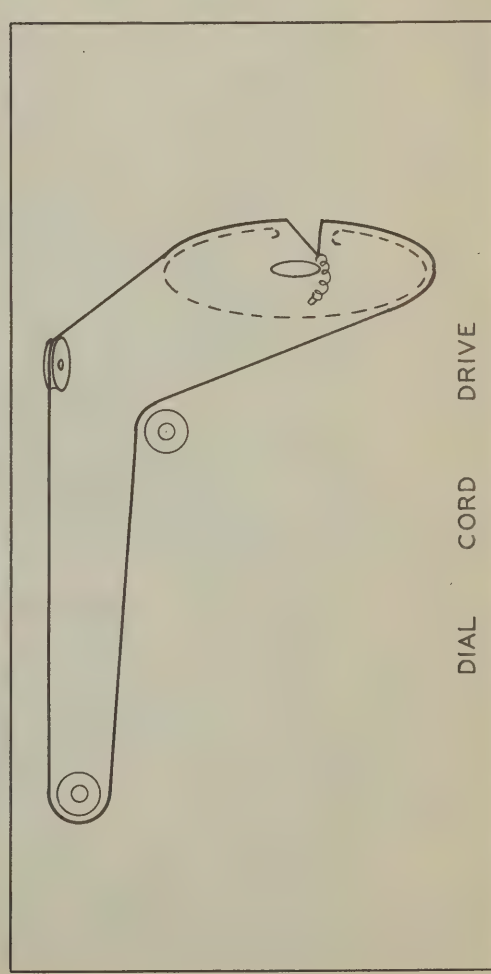
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	BELMONT PART No.	MEISSNER PART No.
44	Loop Ant. & Loading Coil	1Ω	.75Ω	B-13E-10123	
45	Osc. Coil	30Ω	2.8Ω	A-13D-10215	
46	Input IF	30.5Ω	31Ω	1081403	16-6658
47	Output IF	23.5Ω	25Ω	108145C	16-6660

DIAL LIGHT

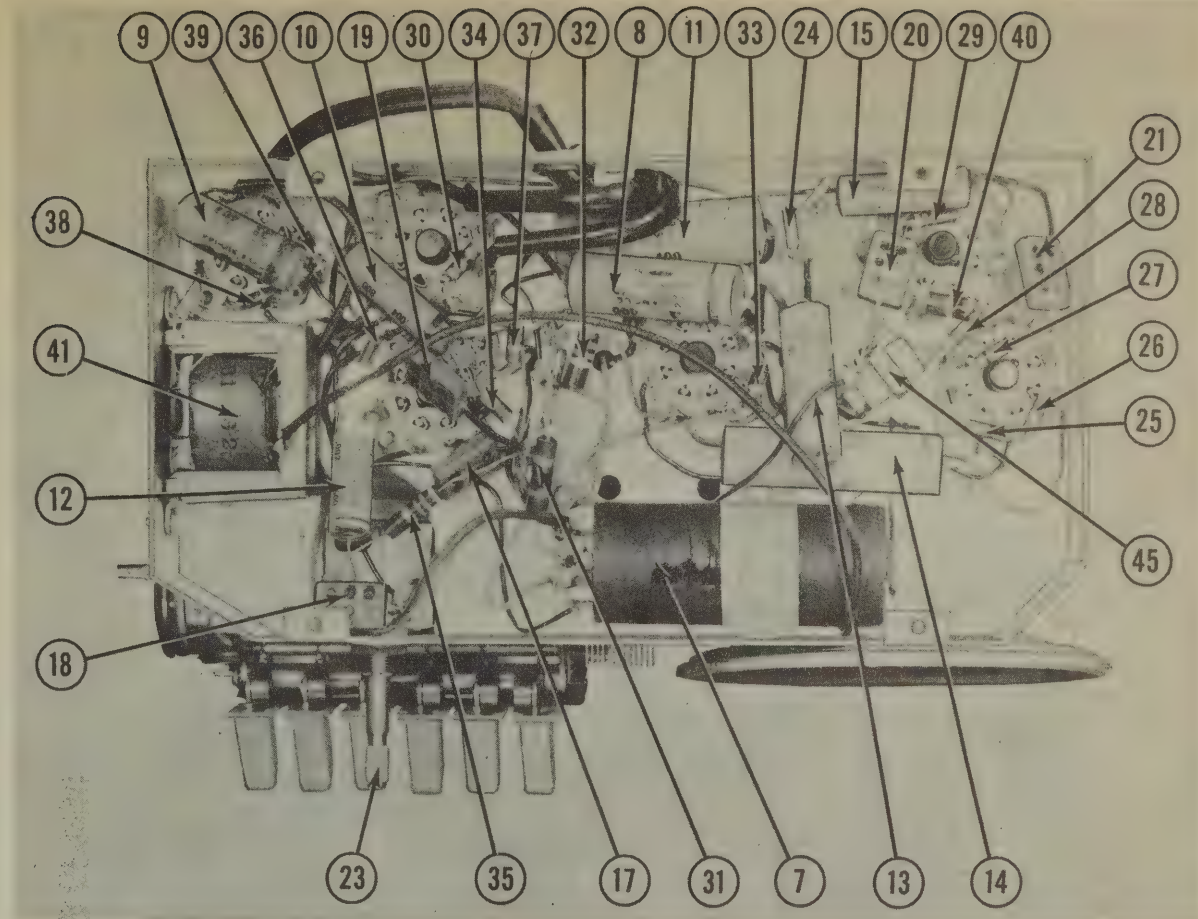
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				HEAD COLOR	BELMONT PART No.	
48	Bayonet	6-8	0.15	Brown	107249	#47

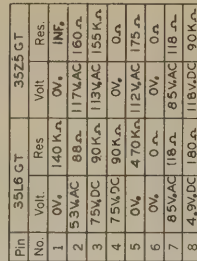
MISCELLANEOUS

ITEM No.	PART NAME	BELMONT PART No.	NOTES
	Tuning Cap.	B-8A-10212	2 Gang Variable



CHASSIS—BOTTOM VIEW





RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS.

477-7

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

CLARION MODEL 11011

TRADE NAME	Clarion, Model 11011
MANUFACTURER	Warwick Mfg. Corp., 4640 W. Harrison St., Chicago, Ill.
TYPE SET	Three Power Portable Superheterodyne - Self Contained Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1U4 IF Amp., 1S5 Det.-AVC-AF, 3Q4 Power Output
POWER SUPPLY	110-120 Volts AC-DC or 7½ Volt "A" Battery & 90 Volt "B" Battery
POWER SUPPLY	.170 Amp. @ 117 Volts AC or 55MA @ 7.8 Volts DC & 14MA @ 94 Volts DC
TUNING RANGE—BROADCAST	535-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power whenever available. When AC power must be used use an isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Connect loop to receiver with extended leads. Volume control at maximum position. Output of signal generator no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to .001 MFD. to reduce hum modulation.
250MMFD	High side to ext. ant. lead. Low side to ext. gnd. lead.	1600KC	"	"	A5	Adjust for maximum output.
250MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "
250MMFD	"	600KC	"	"	A7	Adjust for maximum output. Repeat last three steps.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

CLARION
MODEL 11011

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		CLARION PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1U4	1U4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AL	
4	Power Output	3Q4	3Q4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		CLARION PART No.	AEROVOX PART No.	CORNEILL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.
5A	40 CAP. 150 VOLT	A18-281	AF686D4A	UF7DU191	TP363	QSB-403020-150
5B	20 CAP. 150 VOLT					
5C	20 CAP. 150 VOLT					
6	100 CAP. 25 VOLT		PR25-100	BRH251	TC2501	WUC-102
7	.1 CAP. 400 VOLT	A18-158	484-05	DF455	TP426	TC-15
8	.1 CAP. 200 VOLT	A18-157	484-1	DF451	TP428	TC-1
9	.005 CAP. 150 VOLT	A18-166	484-005	DF6D5	TP408	S-6-005
10	.005 CAP. 150 VOLT	A18-166	484-005	DF6D5	TP408	TC-25
11	.01 CAP. 200 VOLT	A18-165	484-01	DF451	TP408	TC-25
12	.002 CAP. 600 VOLT	A18-155	684-002	DF6D2	TP421	TC-1
13	.01 CAP. 200 VOLT	A18-165	484-01	DF451	TP421	TC-22
14	.1 CAP. 400 VOLT	A18-160	484-1	DF451	TP428	TC-1
15	.002 CAP. 600 VOLT	A18-155	684-002	DF6D2	TP421	TC-1
16	.1 CAP. 400 VOLT	A18-160	484-1	DF451	TP428	TC-1
17	.5 CAP. 500 VOLT	A15-175	1468-00005	SW5Q5	MC235	MO.5-45
18	100 CAP. 500 VOLT	A15-188	1468-0001	SW5T1	MC235	MO.5-31
19	100 CAP. 500 VOLT	A15-188	1468-0001	SW5T1	MC235	MO.5-31
20	50 CAP. 500 VOLT	A15-175	1468-00005	SW5Q5	MC235	MO.5-45
21	100 CAP. 500 VOLT	A15-188	1468-0001	SW5T1	MC235	MO.5-31

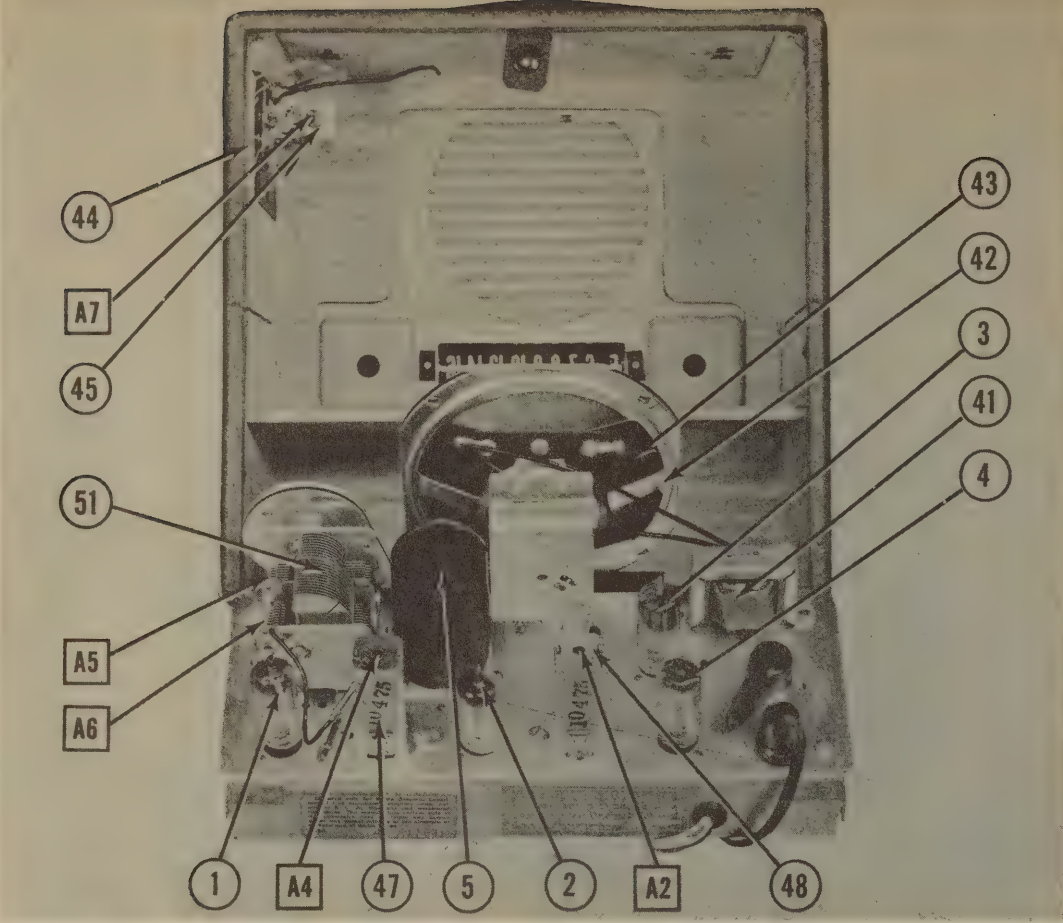
†Do not use bypass section.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		CLARION PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22A	1 Meg. Switch	A24-170	MK402	D13-137	AM-62-Z	Volume Control
22B	1 Meg. Switch		Not Req.		KSS-3	Attach to 2" dia. per instructions
22C	1 Meg. Switch		Not Req.		SW-A2	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		CLARION PART No.	IRC PART No.	
23	2.2 Meg.	A60-684	BTS-2.2 Meg.	Red-Red-Grn. Converter Grid
24	100KΩ	A60-671	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
25	220KΩ	A60-709	BTS-220K	Gray-Red-Yl. Filament String
26	220KΩ	A60-667	BTS-220K	Red-Red-Yl. Line Isolation
27	3300Ω	A60-710	BTS-3300	Or.-White-Red Di Coupling
28	10 Meg.	A60-663	BTS-10 Meg.	Br.-Blk.-Blue IF Grid
29	2.2 Meg.	A60-684	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
30	50KΩ	A60-885	BTS-47K	Grn.-Blk.-Diode AF Filter
31	10 Meg.	A60-863	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
32	1000Ω	A60-875	BTS-1000	Br.-Blk.-Red Filament Dropping
33	470KΩ	A60-864	BTS-470K	Yl.-Yl.-Yl. AF Plate Load
34	2.2 Meg.	A60-684	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
35	470Ω	A60-707	BTS-470	Yl.-Yl.-Br. Filament String
36	680Ω	A60-714	BTS-680	Blue-Gray-Br. Filament String
37	2200Ω	A60-713	BTS-2200	Red-Red-Red Filter
38	910Ω			
39A	10Ω			
39B	75Ω			
40	3	A60-712	AB-75	Vl.-Grn.-Blk. Surge Limiter



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	CLARION PART No.	THORDARN PART No.	
41	7600Ω	3.4Ω	750Ω	.7Ω	
42	PM	3.4Ω	A80-228	A-3878	T22S47
43	CONE DIA.	VC DIA.			
44	4 1/2"	1/2"			

SPEAKER

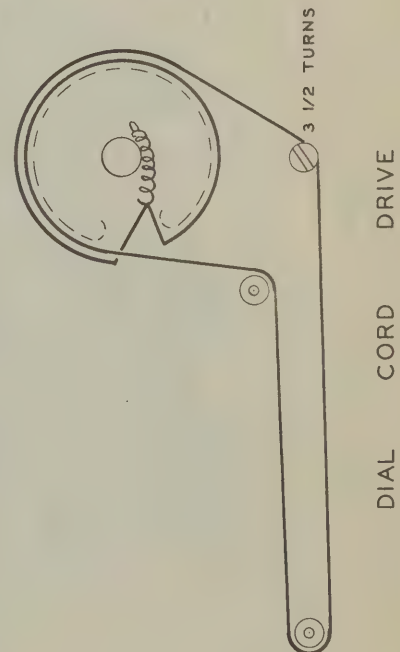
ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	CLARION PART No.	JENSEN PART No.	
42	PM	3.4Ω	B79-350	ST-107*	
43	CONE DIA.	VC DIA.		Mod. PS-V	*Trim flange to clear cabinet and dial.
44	4 1/2"	1/2"			NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

R F COILS

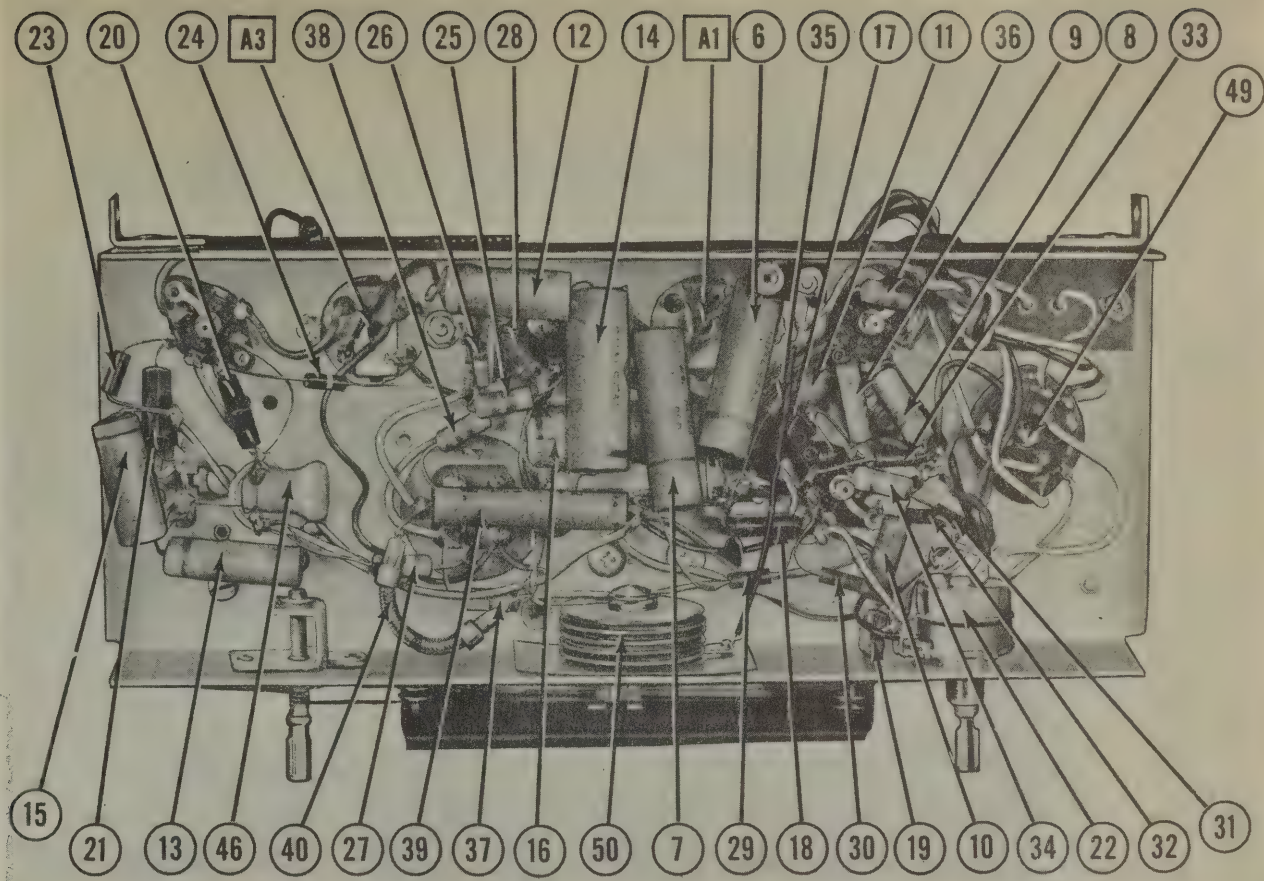
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	CLARION PART No.	MEISSNER PART No.
44	Loop Ant.	.1Ω	.7Ω		
45	Loop Loading Coil	.3Ω	.7Ω	10-470	
46	Osc. Coil	2Ω	7Ω	B10-460	14-1040
47	Input IF	21Ω	21Ω	C10-462	16-6658
48	Output IF	21Ω	21Ω	C10-463	16-6660

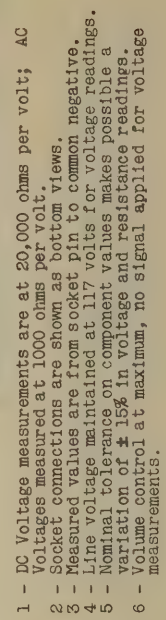
MISCELLANEOUS

ITEM No.	PART NAME	CLARION PART No.	NOTES
49	Switch	B69-173	AC/DC/Batt.
50	Rectifier	A88-391	Selenium
51	1/2 gang var. Cap.	B19-188	18-469MTF, 42-224 MTF
	Dial Pointer	A58-66	
	Dial Scale	B67-496	
	A-B Battery Pack		Eveready Type #753



CHASSIS—BOTTOM VIEW







CLEARSONIC MODEL 5C66

TRADE NAME Clearsonic, Model 5C66
MANUFACTURER U.S. Television Mfg. Co., 3 West 61st St., New York, N.Y.
TYPE SET AC-DC Operated Superheterodyne Receiver with Self Contained Loop Antenna
TUBES (FIVE) Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 110-120 Volts AC-DC

TUNING RANGE—BROADCAST 535-1620KC

RATING .250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin 8 (grid) 12SA7. Low side to B-.	455KC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD to reduce hum modulation.
200MMFD	High side to ext. ant. lead. Low side to ext. gnd. lead.	1600KC	1600KC	"	A5	Adjust for maximum output.
200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "
200MMFD	"	600KC	600KC	"	A7	Remove dial to get access to slug adjustment. Rock tuning control and adjust for maximum output. Repeat last three steps.

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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		US TELEVISION PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		US TELE. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	
6	40	PA-4300-1	PRS150-40	BR4015	TC48	M-40-150	UT-401
7	40	PA-4300-1	PRS150-40	BR4015	TC48	M-40-150	UT-401
8	10	PA-4300-5	PRS150-10	BR1215	TC42	M-10-150	TA-121
9	10	50	PRS50-10	BR1215	TC32	M-10-50	TA-510
10	.05	PC400M-503	694-05	DP485	TP415	S-6-05	TC-15
11	.01	PC400L-103	484-01	DP481	TP421	S-4-01	TC-11
12	.01	PC400L-103	484-01	DP481	TP421	S-4-01	TC-11
13	.05	PC400M-503	484-05	DP485	TP425	S-6-05	TC-15
14	.01	PC400L-103	484-01	DP481	TP421	S-4-01	TC-11
15	.05	PC400M-503	484-05	DP485	TP425	S-6-05	TC-15
16	.02	PC400L-204	484-02	DP482	TP422	S-4-02	TC-12
17	.05	PC400M-503	484-05	DP485	TP425	S-6-05	TC-15
18	.05	500	1468-0005	5W5T5	M2245	M0.5-35	IFM-35
19	500	500	1468-0005	5W5T5	M2245	M0.5-35	IFM-35
20	100	500	1468-0001	5W5T1	M2235	M0.5-31	IFM-31
45	50	MC600-101	1468-00005	5W545	M2225	M0.5-45	IFM-45

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		US TELEVISION PART No.	MALLORY PART No.	CLAROSTAT PART No.	
21A	500KΩ	PA4400-2	PR48	D13-133	Volume Control
B	Shaft	Not Req.	Not Req.	A	Attach to 21A per instructions
C	Switch	Not Req.	M26	41	SW-A

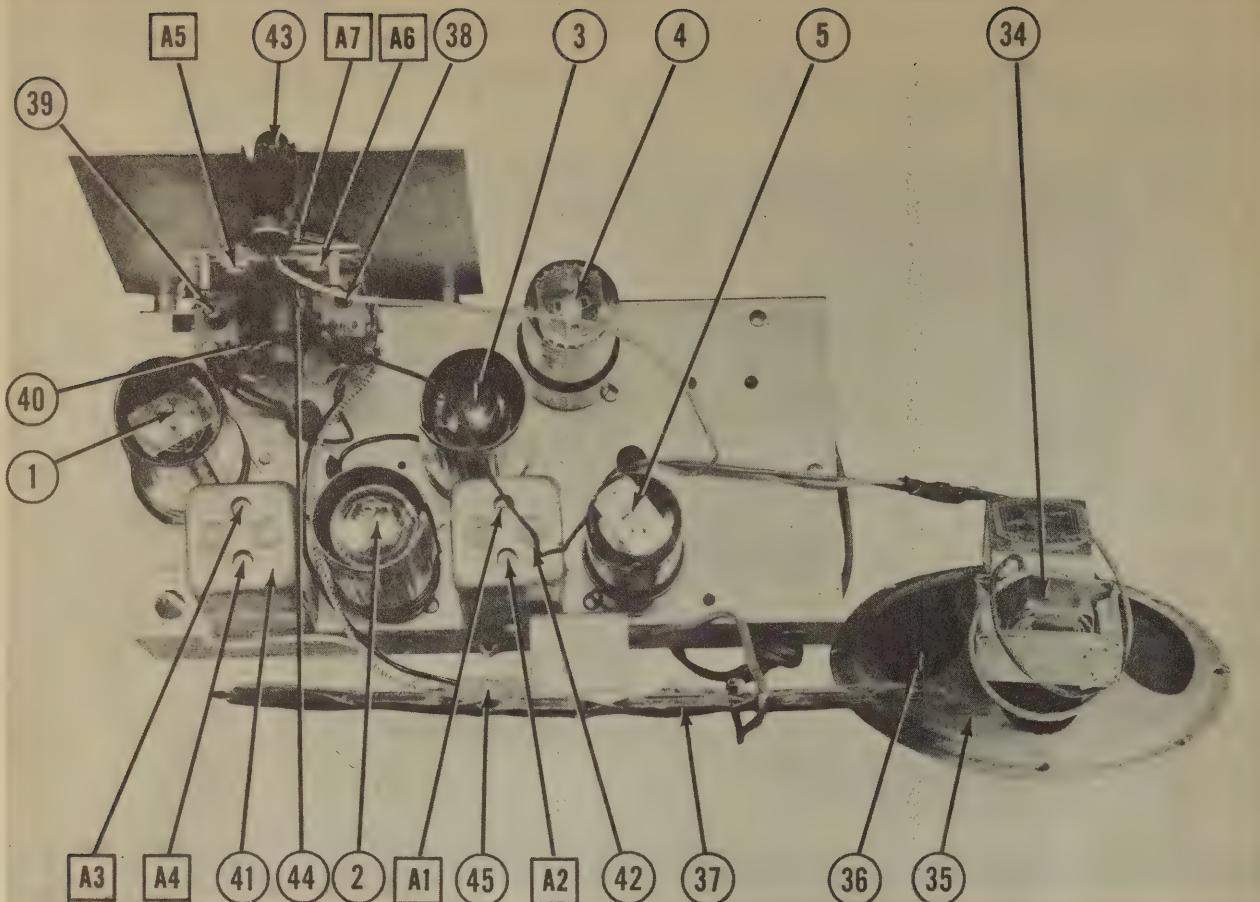
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		US TELEVISION PART No.	IRC PART No.	IRC PART No.	
22	20KΩ	RIS-223	BTS-22K	Red-Blk.-Or. Oscillator Grid	
23	10 Meg.	RIS-106	BTS-10 Meg.	Br.-Blk.-Blue AVC Network-See Note 1	
24	2 Meg.	RIS-225	BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network	
25	10 Meg.	RIS-106	BTS-10 Meg.	Br.-Blk.-Blue AF Grid	
26	300KΩ	RIS-334	BTS-330K	Or.-Blk.-Yl. AF Plate Load	
27	100KΩ	RIS-104	BTS-100K	Grn.-Blk.-Yl. AF Plate Decoupling	
28	510KΩ	RIS-514	BTS-470K	Grn.-Br.-Yl. Output Grid	
29	150Ω	RIG-151	BW-1-150	Br.-Grn.-Br. Output Cathode	
30	2200Ω	R28-222	BTA-2200	Red-Red-Red Filter	
31	390Ω	R28-391	BW-1-390	Or.-White-Br.	
32	5600Ω		BTS-5600	Grn.-Blue-Red Parasitic Suppressor-See Note 1	
33	1000Ω		BTS-1000	Br.-Blk.-Red	

Note 1 - Not used in all models

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE PRI. SEC.	DC RES. PRI. SEC.	US TELEVISION PART No.	STANCOR PART No.	
34	2300Ω 3.4Ω	180Ω .6Ω	Part of PC-63000-3	A-3876*	*Band mounting tabs down, file out slots and mount on Original bracket.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		US TELEVISION PART No.	JENSEN PART No.	
35	FIELD VC ITP. 3.42	ST-107	ST-107	
36	CONC DIA. VC DIA. 4-13/16"	PC-63000-3 Mod. PS-V	PC-63000-3 Mod. PS-V	NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT.

R F COILS

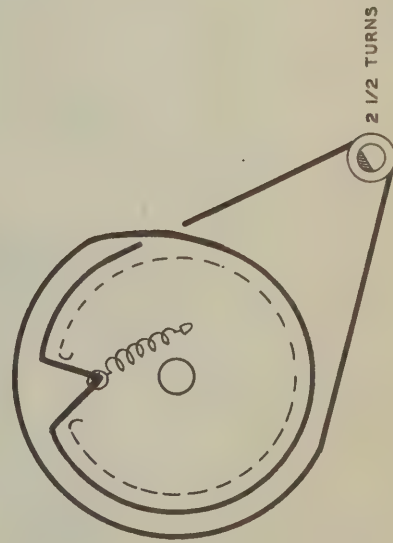
ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		US TELE. PART No.	WEISSNER PART No.	
37	Loop Ant.	02		
38	Ant. Coil	82		
39	Osc. Coil	92		
40	Osc. Shunt Coil	7.52		
41	Input IF	162	AB42202	38 Part of tuning assby.
42	Output IF	152	AB42203	39 " " "
			16-6658	40 " " "
			16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	US TELEVISION PART No.	
43	Bayonet	6-8	0.15	Brown	PA-4100	Type 47

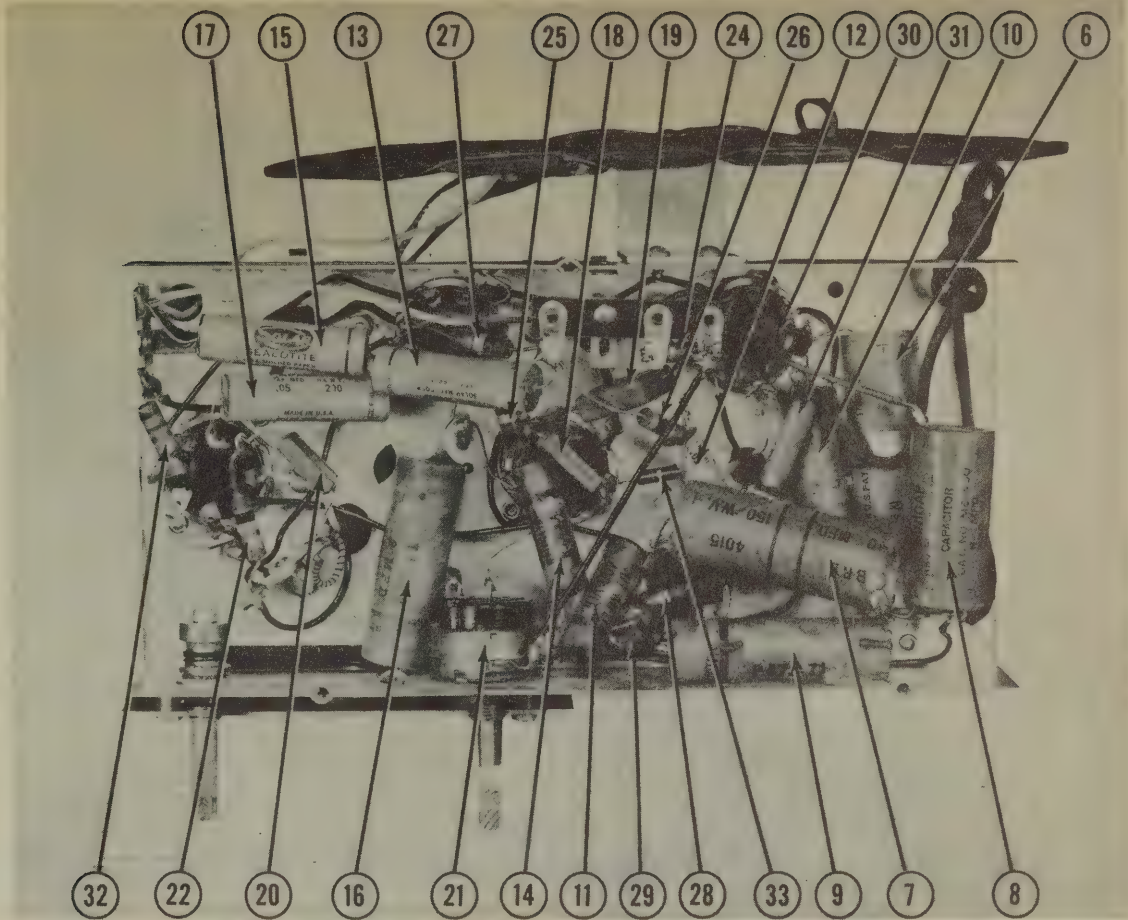
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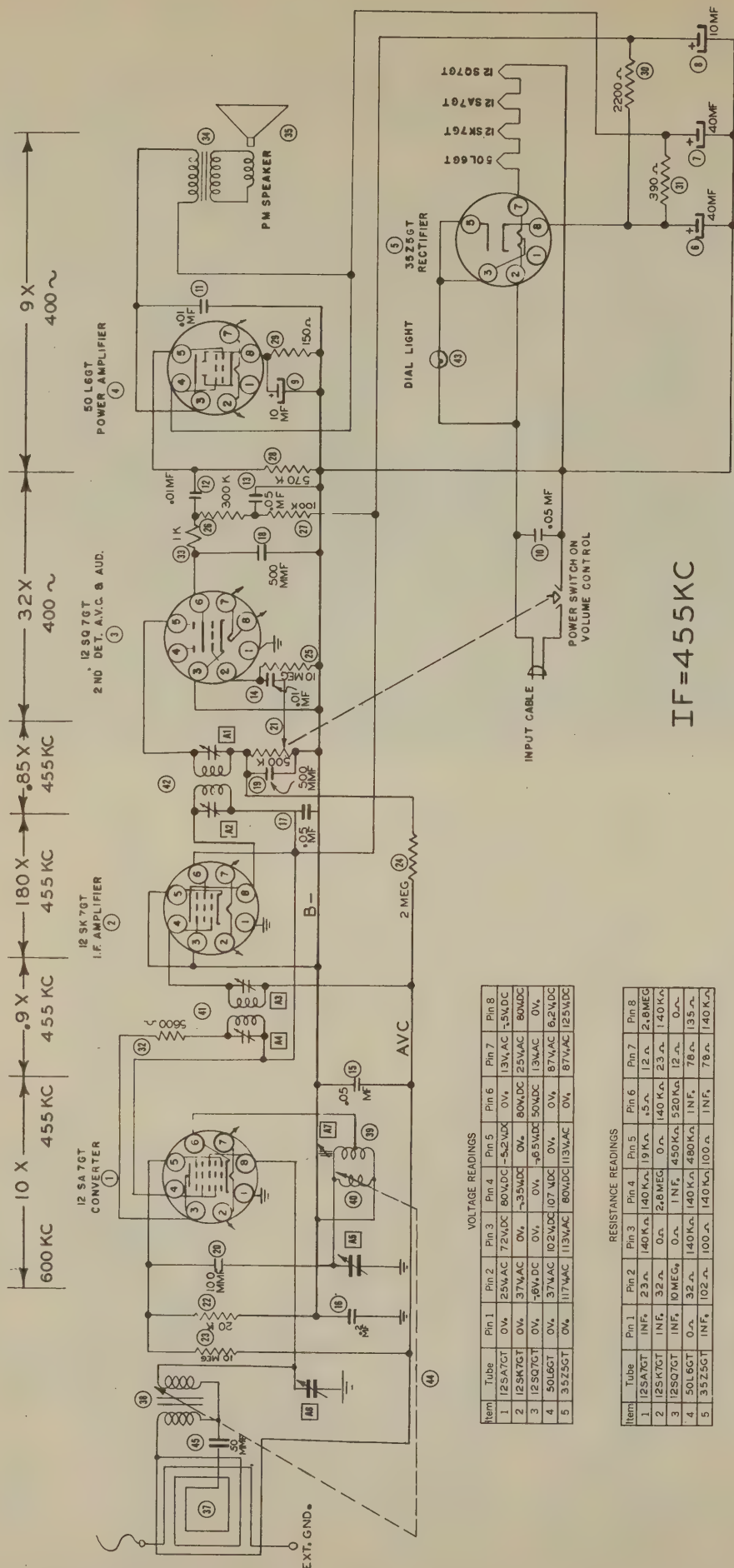
ITEM No.	PART NAME	US TELEVISION PART No.	NOTES
44	Tuner Assy.		



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V	25VAC	72VDC	80VDC	-5.2VDC	0V	13VAC	15VDC
2	12SK7GT	0V	37VAC	0V	-35VDC	0V	80VDC	25VAC	80VDC
3	12SQ7GT	0V	-6VDC	0V	-16.5VDC	50VDC	13VAC	0V	0V
4	50L6GT	0V	37VAC	102VDC	107VDC	0V	87VAC	62VDC	0V
5	35Z5GT	0V	117VAC	113VAC	80VDC	113VAC	0V	87VAC	125VDC

RESISTANCE READINGS

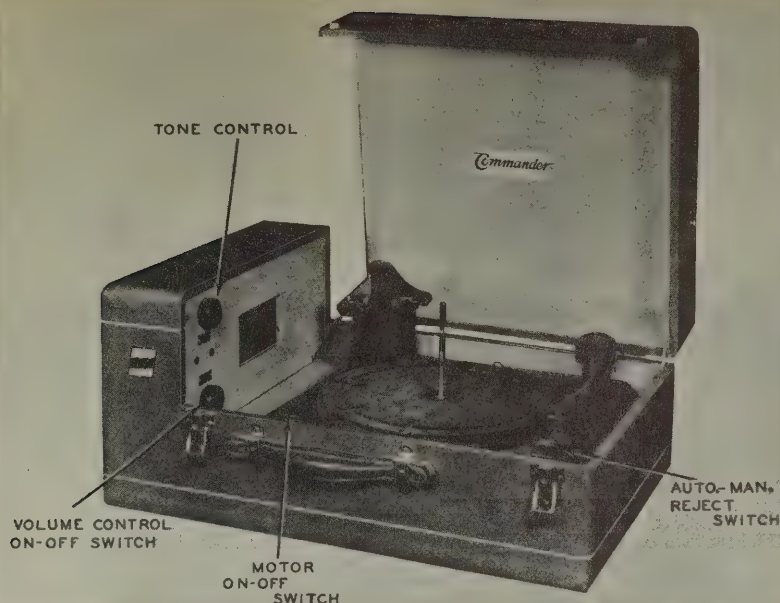
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	INF	23 Ω	140 K Ω	140 K Ω	19 K Ω	5 Ω	12 Ω	2.6MEG
2	12SK7GT	INF	32 Ω	0 Ω	2.6MEG	0 Ω	140 K Ω	23 Ω	140 K Ω
3	12SQ7GT	INF	10MEG	0 Ω	INF	450 K Ω	520 K Ω	12 Ω	0 Ω
4	50L6GT	0 Ω	32 Ω	140 K Ω	140 K Ω	480 K Ω	INF	78 Ω	135 Ω
5	35Z5GT	INF	102 Ω	100 Ω	140 K Ω	100 Ω	INF	78 Ω	140 K Ω

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

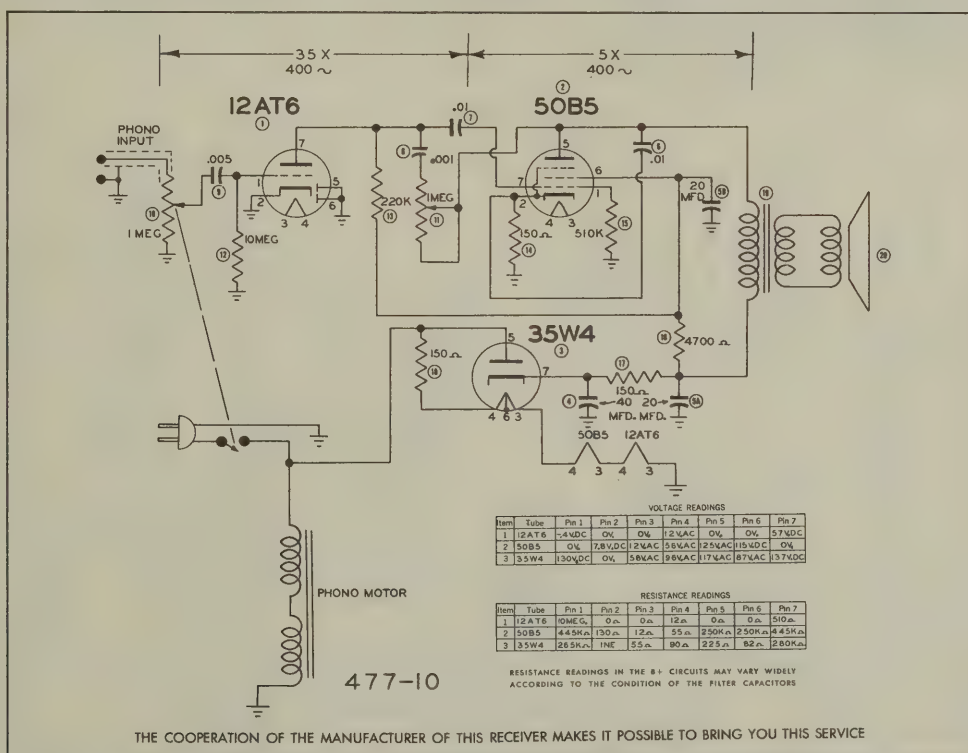
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

IF=455KC

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for volume measurements.



TRADE NAME Commander Record Player
MANUFACTURER Commander Industries, 3700 W. Roosevelt Road, Chicago, Ill.
TYPE SET AC Operated Portable Phonograph with 3-Tube Amplifier and Speaker
TUBES (THREE) Types, 12AT6 AF Amp., 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY 110-120 Volts AC RATING .230 Amp. @ 117 Volts AC



1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		COMMANDER PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	AF Amp.	12AT6	12AT6	7BT	
2	Power Output	50B5	50B5	7BZ	
3	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		COMMANDER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	
4	40		PRS150-40	BR4015	TC48	M-40-150	UT-401
5A	20		PRS150-20	BRD2215	2N509	M-2X20-150	TA-220
6	.01		634-01	DT6S1	TP410	S-6-01	TC-11
7	.01		684-01	DT6S1	TP410	S-6-01	TC-11
8	.001		684-001	DT6D1	TP404	S-6-001	TC-21
9	.005		684-005	DT6D5	TP408	S-6-005	TC-25

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		COMMANDER PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
10A	1 Meg. Shaft	NR53	Not Req.	DI3-137	M-63-Z	Volume Control
10B	1 Meg. Switch	NR26	Not Req.	41	SW-A	Attach to 10A per instructions
11A	1 Meg. Shaft	NR53	Not Req.	DI3-137	M-63-Z	Tone Control
11B	1 Meg. Shaft	Not Req.	Not Req.	A	Not Req.	Attach to 11A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		COMMANDER PART No.	IRC PART No.	
12	10 Meg.		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
13	220K		BTS-220K	Red-Red-Yl. 1st AF Plate Load
14	150K		BW-1-150	Br.-Grn.-Br. Output Cathode
15	510K		BTS-470K	Grn.-Br. Yl. Output Grid
16	4700K		BTS-4700	Yl.-Vl.-Red Filter
17	150K		AB-150	Rectifier Ballast
18	150K		AB-150	

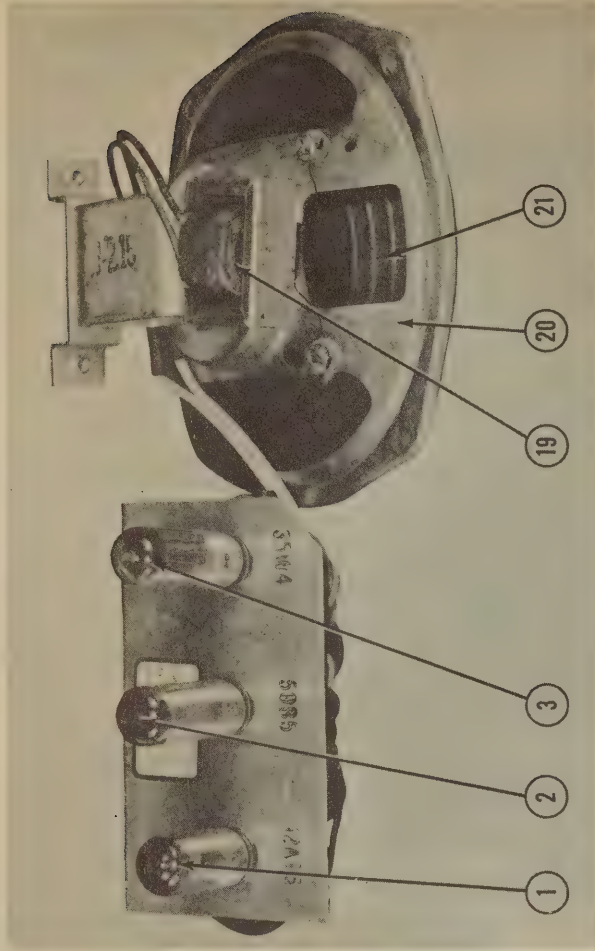
TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		COMMANDER PART No.	STANCOR PART No.	THORDARN PART No.	
19	1400Z 3.3Z		A-3865*	T22845*	*Bend mounting tabs down, file out slots and mount on original bracket.

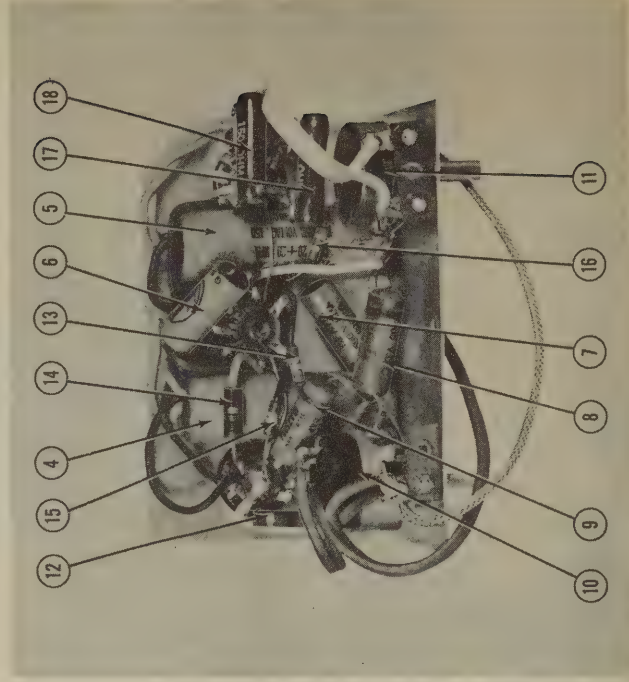
SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		COMMANDER PART No.	JENSEN PART No.	
20	FIELD PM		ST-108	
	VC IMP.		Mod. P6-X	
21	6" CONE DIA. 1/2"			NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





CROSLEY MODEL 56TS

TRADE NAME Crosley, Model 56TS (Automatic Changer), 56TR (Manual Record Player)
MANUFACTURER Crosley Corp., 1329 Arlington St., Cincinnati, Ohio
TYPE SET AC Operated Phono-Radio Combination Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE) Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 105-125 Volts AC

TUNING RANGE-BROADCAST 540-1600KC

SHORT WAVE .250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS-READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer to notch on left end of dial back-plate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screw-driver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
200MMFD	High side to ext. ant. lead. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200MMFD	"	1620KC	"	"	A5	" " " "
200MMFD	"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output. After receiver is in cabinet tune in a weak station about 1400KC and adjust A6 for maximum output.

DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type control knobs.
2. Remove five Phillips head screws holding loop ant. to rear of cabinet.
3. Remove four screws holding chassis mounting board to cabinet. Remove chassis on mounting board.
4. Unsolder phono-motor leads.
5. Unsolder phono-pickup leads.
6. Remove two bolts holding record changer. Lift up changer.
7. Remove screw holding speaker bracket. Remove speaker and bracket.
8. Remove three bolts holding mounting board to chassis. Remove mounting board.
9. Remove four self-tapping screws holding shield to chassis. Remove shield.

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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

CROSLEY
MODELS 56TS, 56TR

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		CROSLEY PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		CROSLEY PART No.	AEROVOX PART No.	CORNELL-DUBIERRE PART No.	MALLORY PART No.	SOLAR PART No.	
6A	20 CAP. 150V	B-135732		EZ53215C4	2N509	DSB-804020-150	EL-221 Filter - Blue *
6B	60 150			2N509	2N520	M-5030-150	UT-501 " - Red
6C	50 150	B-135770	FRA150-50-30	BRD3515			TA-530 Filter " - Green
7	.05 600	39001-17	884-05	DT885	TP410	S-6-05	TC-15 Line Filter
8	.022 600	39001-80	884-02	DT882	TP412	S-6-02	TC-12 Output Plate Bypass
9	.022 600	39001-80	884-02	DT882	TP412	S-6-02	TC-12 Audio Coupling
10	.0033 600	39001-76	884-003	DT883	TP406	S-6-003	TC-23
11	.02 600	39001-80	884-02	DT882	TP412	S-6-02	TC-12 Hum Feedback
12	.0033 600	39001-76	884-003	DT883	TP406	S-6-003	TC-23 Tone Compensation
13	.075 600	39001-19	884-075	DT886	TP452	S-6-06	TC-16 Ant. Isolation
14	.1 600	39001-17	884-1	DT881	TP418	S-6-1	TC-1 Line Isolation
15	.05 600	39001-17	884-05	DT885	TP415	S-6-05	TC-15 AVC Filter
16	250 500	39001-73	1468-00025	SW5T25	MC240	MO-5-325	1FM-325 Audio Plate Bypass

*Used in early productions.
†Used with two section filters.
‡Do not use bypass section.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		CROSLEY PART No.	MALLORY PART No.	IRC PART No.	
17A	1 Meg. 1 Shaft Switch	B-135692 Not Req. #	MX402 Not Req. #	DI3-137 E 41	Volume Control Attach to 17A per Instructions

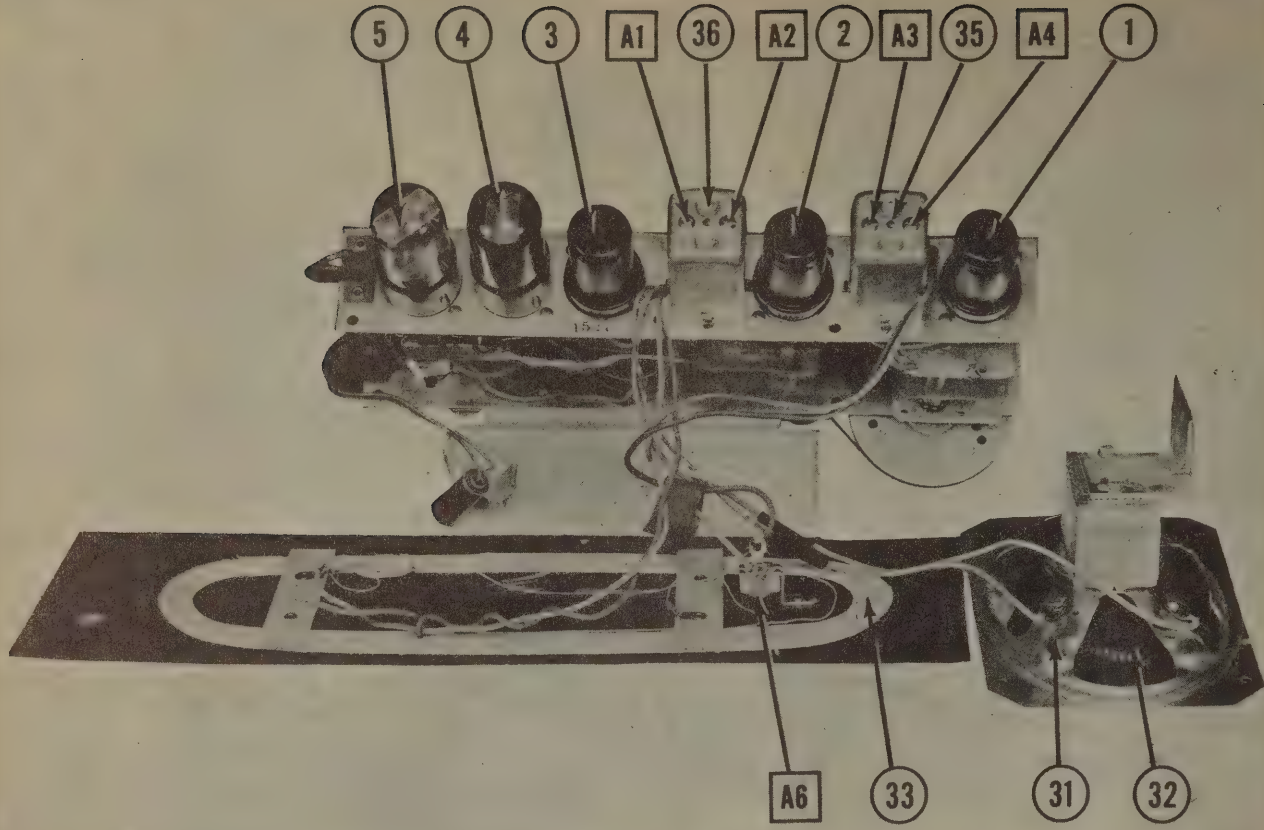
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		CROSLEY PART No.	IRC PART No.	
18	15 Meg.	39294-38	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
19	22KΩ	39294-21	BTS-22K	Red-Red-Or. Oscillator Grid
20	220KΩ	39294-27	BTS-220K	Red-Red-Yl. Line Isolation
21	3.3 Meg.	39294-34	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
22	22KΩ	39294-21	BTS-22K	Red-Red-Yl. Tone Compensation-See Note 1
23	5 Meg.	39294-35	BTS-4.7 Meg.	Grn.-Blk.-Grn. AF Grid
24	470KΩ	39294-29	BTS-470K	Yl.-Vl.-Yl. AF Plate Load
25	470KΩ	39294-29	BTS-470K	Yl.-Vl.-Yl. Output Grid
26	150Ω	39294-8	BM-1-150	Br.-Grn.-Br. Output Cathode
27	1200Ω	39015-26	W-137367	Br.-Red-Red Filter
28	47Ω	1	BM-1-47	Br.-Red-Red Surge Limiter
29	150Ω	39294-8	BM-1-150	Br.-Grn.-Br. Pilot Light Shunt

Note 1 - Not used in early models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		CROSLEY PART No.	STANCOR PART No.	THORARN PART No.	
30	2100Ω 3.72 230Ω 1.0Ω	B-137723	A-3876#	T22845#	#File mounting holes to fit replacement.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA	INSTALLATION NOTES
31A	FIELD PH	C-136420	
31B	VC IMP.	C-135633	Alternate speaker.
32	CONC DIA. 4 X 6	VC DIA. 1/2	NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT

R F COILS

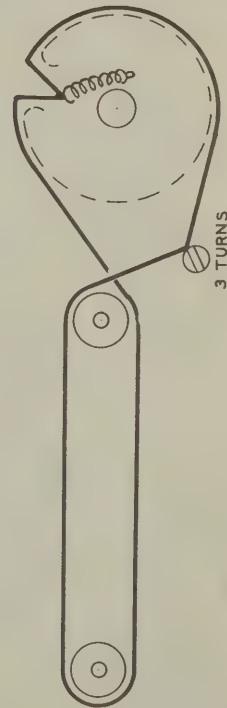
ITEM No.	USE	REPLACEMENT DATA	INSTALLATION NOTES
		CROSLLEY PART No.	
33	Loop Ant.	AC-135840	
34	Osc. Coil	AW-135730	
35	Input IF	AW-135729	
36	Output IF	AW-135731	Add 50MFD from grid to high side of tuning cap.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA	INSTALLATION NOTES
					CROSLLEY PART No.	
37	Bayonet	6-8	0.15	Brown	W-48868	Type 47

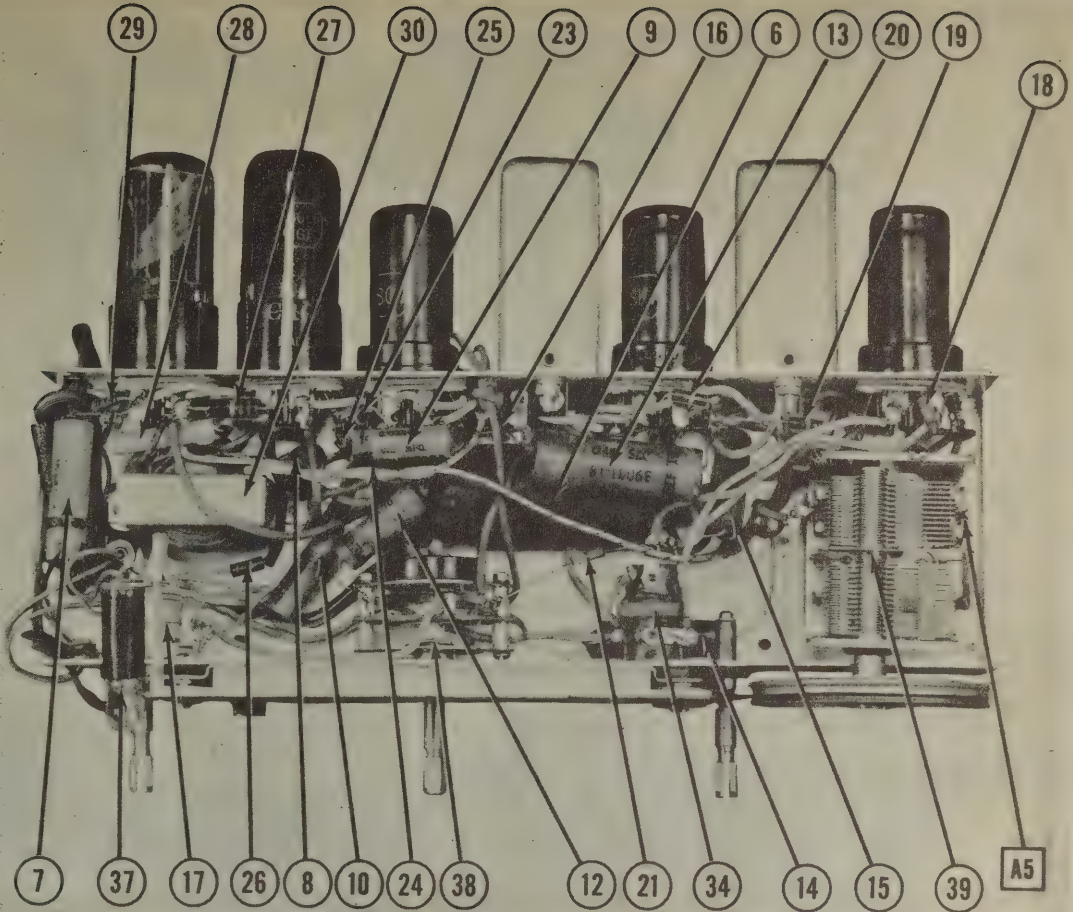
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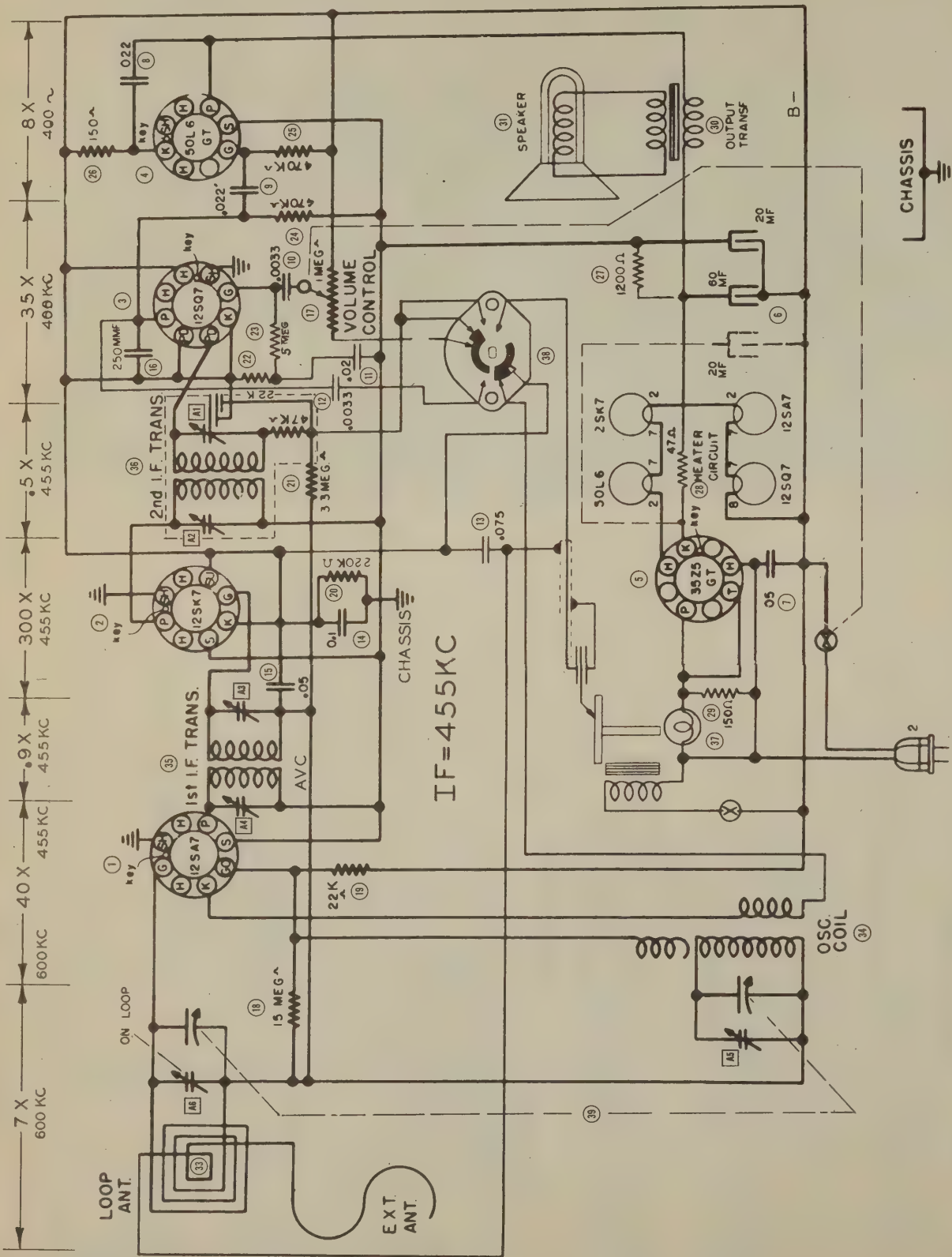
ITEM No.	PART NAME	CROSLLEY PART No.	NOTES
38	Switch	B-135841	Radio-Phono-Tone
39	2 Gang Var. Cap.	B-135570	(13-467MUF, 35-278MUF)
	Dial Pointer	B-135460	
	Dial Glass	B-135751	



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



VOLTAGE AND RESISTANCE
TAKEN IN BROADCAST POSITION

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-11

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



EMERSON MODEL 524

TRADE NAME Emerson, Model 524
MANUFACTURER Emerson Radio & Phono Corp., 111 Eighth Ave., New York, N.Y.
TYPE SET AC Operated Multi-Band Superheterodyne - Three Self Contained Loop Antennas
TUBES (TEN) Types, 6SG7 RF Amp., 6SA7 Mixer, 6J5 Oscillator, 6SG7 IF Amp., 6H6 Det.-AVC., 6SL7GT Phase Inverter-AF, (2) 6V6GT Power Output, 5U4G Rectifier, 6U5/6G5 Tuning Eye.
POWER SUPPLY 110-120 Volts AC Rating .850 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST 530-1625KC **SHORT WAVE** 1530KC-4.3MC, 4.15-10.4MC, 10.15-22.3MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer to end of dial line at low freq. end of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. For first 13 steps ant. switch should be in ext. ant. position. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to center stator of tuning cap. Low side to chassis.	455KC	BC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
400Ω	High side to ext. ant. lug. Low side to chassis.	4MC	SW B2	4MC	"	A5	Adjust for maximum output
400Ω	"	4MC	"	Tune for maximum output.	"	A6,A7	" " " "
400Ω	"	1.7MC	"	"	"	A8	Rock tuning cap and adjust for maximum output. Repeat last three steps.
200MMFD	"	1600KC	BC	1600KC	"	A9	Adjust for maximum output
200MMFD	"	1400KC	"	Tune for maximum output.	"	A10,A11	Adjust for maximum output
200MMFD	"	600KC	"	"	"	A12	Rock tuning cap and adjust for maximum output. Repeat last three steps.
400Ω	High side to ext. ant. lead. Low side to chassis.	10MC	SW B3	10MC	"	A13	Adjust for maximum output
400Ω	"	5MC	"	5MC	"	A14	Adjust for maximum output Repeat last two steps.
400Ω	"	10MC	"	Tune for maximum output.	"	A15,A16	Rock tuning cap and adjust for maximum output.
400Ω	"	22MC	SW B4	22MC	"	A17	Adjust for maximum output
400Ω	"	11MC	"	11MC	"	A18	Adjust for maximum output Repeat last two steps.
400Ω	"	22MC	"	Tune for maximum output.	"	A19,A20	Rock tuning cap and adjust for maximum output.
400Ω	"	10MC	SW B3	"	"	A21	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output while rocking tuning cap. ant. switch should be in loop position.
400Ω	"	22MC	SW B4	"	"	A22	"

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		EMERSON PART No.	STANDARD REPLACEMENT	
1	RF Amp.	6SG7	6SG7	
2	Mixer	6SA7	6SA7	
3	Oscillator	6J5	6J5	
4	IF Amp.	6SG7	6SG7	
5	Det.-AVC	6H6	6H6	
6	Tuning Eye	6U5/6G5	6U5/6G5	
7	Phase Inv.-AF	6SL7GT	6SL7GT	
8	Power Output	6V6GT	6V6GT	
9	Power Output	6V6GT	6V6GT	
10	Rectifier	5U4G	5U4G	

CAPACITORS

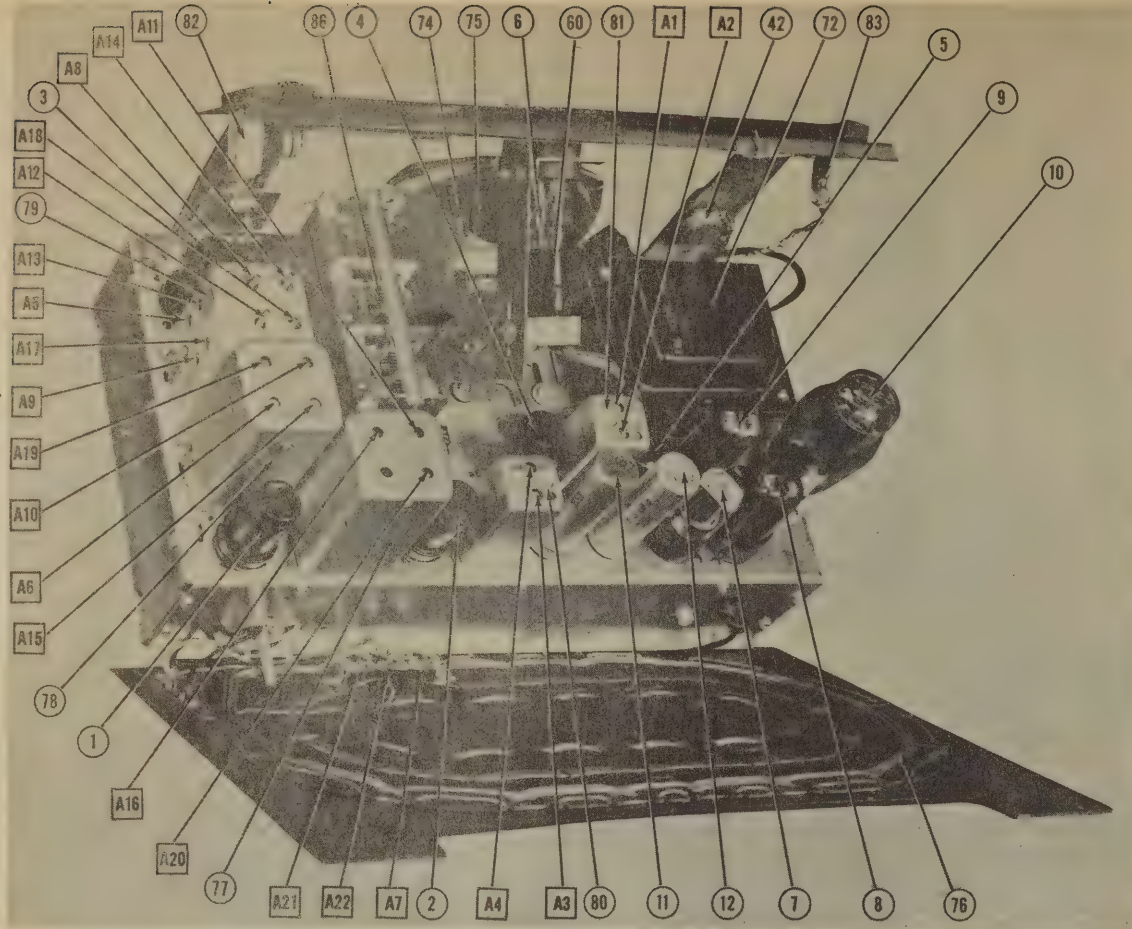
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		EMERSON PART No.	AEROVOX PART No.	CORNEILL DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.
11	40	925220	AF8J	UP4045	FPI46	DY-40-450
12	40	925210	AF8J	UP4045	FPI46	DY-40-450
13	16	925030	PRS350-16	BR1635	TP410	M-20-350
14	.01	920210	684-01	DT681	TP410	S-6-01
15	.01	920210	684-01	DT681	TP410	S-6-01
16	.01	920210	684-01	DT681	TP410	S-6-01
17	.005	920230	684-005	DT685	TP408	S-6-005
18	.01	920210	684-01	DT681	TP410	S-6-01
19	.05	920270	684-05	DT685	TP415	S-6-05
20	.01	920270	684-01	DT681	TP410	S-6-01
21	.1	920240	484-1	DT481	TP428	S-4-1
22	.05	920270	684-05	DT685	TP415	S-6-05
23	.01	920210	684-01	DT681	TP410	S-6-01
24	.1	920240	484-1	DT481	TP428	S-4-1
25	.05	920260	484-05	DT485	TP428	S-4-05
26	.1	920240	484-1	DT481	TP428	S-4-1
27	.05	920210	684-01	DT681	TP410	S-6-01
28	.05	920260	484-05	DT485	TP428	S-4-05
29	500	910100	1468-0005	SW575	MC245	M0.5-35
30	100	910100	1468-0001	SW571	MC235	M0.5-31
31	500	915020	1468-0001	SW571	MC235	M0.5-31
32	1500	915020	1464-003	1R5D3	MCB461	MMS-5-23
33	3000	915010				
34	8000	915000				
35	500	910170	1467-003	1W5D3	MC461	MW-5-23
36	5000	910100	1468-0001	SW571	MC235	M0.5-31
37	100	915040				
38	60	910100	1468-0001	SW571	MC235	M0.5-31
39	100	910100	1468-001	1W5D1	MC255	MW-5-21
40	1000	910180				

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		EMERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
41A	500KΩ	390070	TY230	D13-133X	AT-78	Volume Control
B	Shaft	Not Req.	SS25	E	XSS-3	Attach to 41A per instructions
C	Switch		M26	41	SW-A	
42A	500KΩ	(390360 or 390080)	MK401	D13-133	AM-60-Z	Tone Control
E	Shaft		Not Req.	E	XSS-3	Attach to 42A per instructions

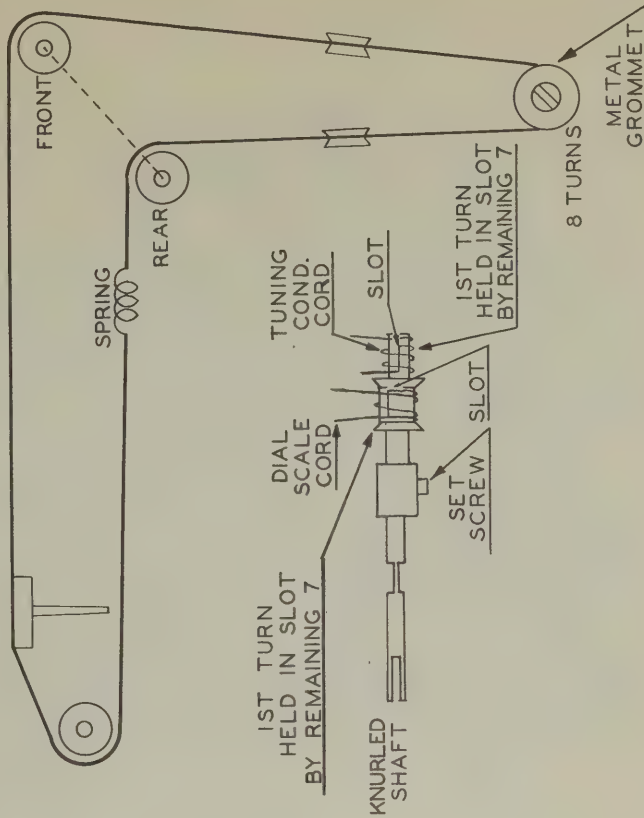
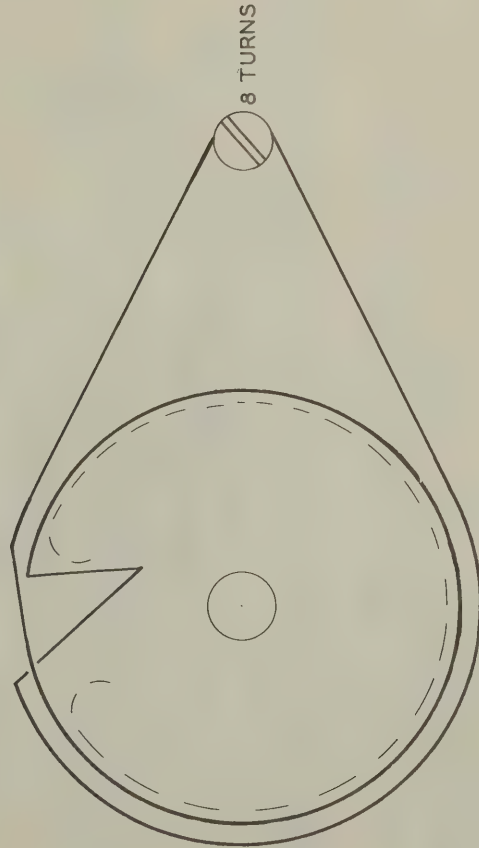
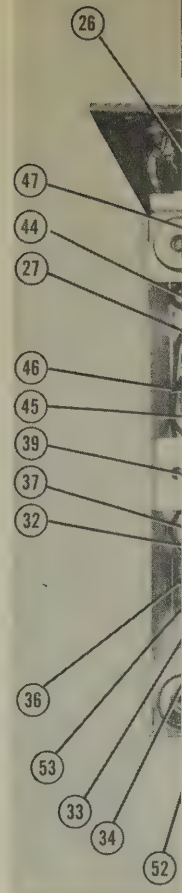
CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued) RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	EMERSON PART No.	IRC PART No.	
43	560Ω	1/2	310430	BTS-560	Grn.-Blue-Br. Parasitic Suppressor
44	4700Ω	1/2	320650	BTS-4700	Yl.-Yl.-Red Antenna Loading
45	220KΩ	1/2	321050	BTS-220K	Red-Red-Yl. AVC Network
46	56KΩ	1	370910	BTA-56K	Grn.-Blue-Or. RF Screen Dropping
47	150KΩ	1/2	320290	BM-1-150	Br.-Grn.-Br. RF Cathode
48	220KΩ	1/2	321050	BTS-220K	Red-Red-Yl. AVC Network
49	22KΩ	2	397080	BT-2-22K	Red-Red-Or. Converter Screen Dropping
50	575Ω	1	310450	RU-1-270	Red-Vl.-Br. Converter Cathode

CHASSIS—BOTTOM VIEW



DIAL CORD DRIVES

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		EMERSON PART No.	STANDARD REPLACEMENT	
1	RF Amp.	68C7	68C7	
2	Mixer	68A7	68A7	
3	Oscillator	6J5	6J5	
4	IF Amp.	68C7	68C7	
5	Det.-AVC	6H6	6H6	
6	Tuning Eye	6U5/6G5	6U5/6G5	
7	Phase Inv.-AF	6SL7GT	6SL7GT	
8	Power Output	6V6GT	6V6GT	
9	Power Output	6V6GT	6V6GT	
10	Rectifier	5U4G	5U4G	

CAPACITORS

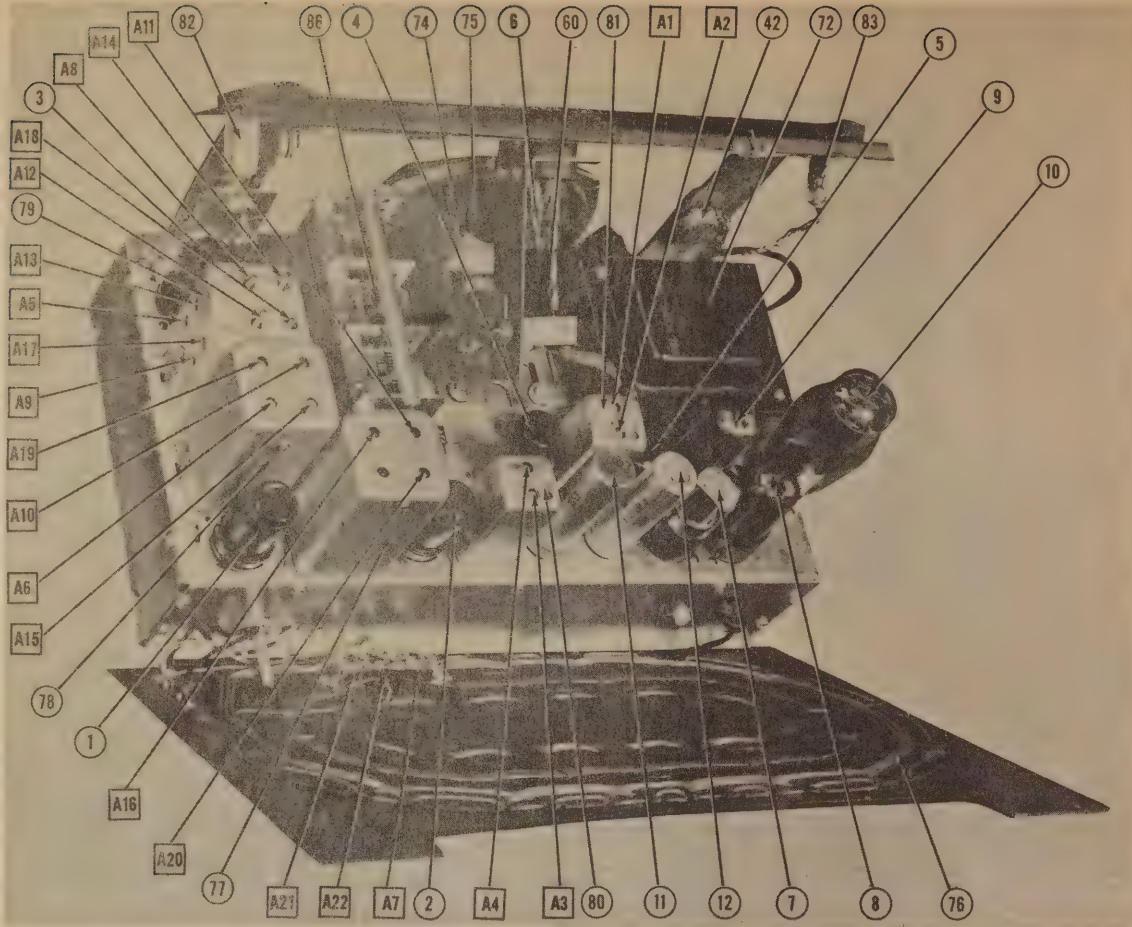
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.
11	40	925220	AF8J	UP4045	FP146	DY-40-450
12	40	925010	AF8J	UP4045	FP146	DY-40-450
13	16	925030	PR8350-16	BR1635	TC65	UT-163
14	16	920210	684-01	DT681	TP410	S-6-01
15	.01	920210	684-01	DT681	TP410	S-6-01
16	.01	920210	684-01	DT681	TP410	S-6-01
17	.005	920230	684-005	DT681	TP408	S-6-005
18	.01	920210	684-01	DT681	TP410	S-6-01
19	.05	920270	684-05	DT681	TP415	S-6-05
20	.01	920090	484-01	DT481	TP410	S-4-01
21	.1	920040	484-1	DT481	TP428	S-4-1
22	.05	920070	484-05	DT481	TP415	S-6-05
23	.01	920210	684-01	DT681	TP410	S-6-01
24	.1	920040	484-1	DT481	TP428	S-4-1
25	.05	920060	484-05	DT481	TP428	S-4-1
26	.1	920040	484-1	DT481	TP428	S-4-1
27	.01	920210	684-01	DT681	TP410	S-6-01
28	.05	920060	484-05	DT481	TP428	S-4-1
29	500	910100	1468-0005	SW5T5	MC245	MO.5-35
30	100	910100	1468-0001	SW5T1	MC235	MO.5-31
31	500	910100	1468-0001	SW5T1	MC235	MO.5-31
32	500	915050				
33	1500	915020				
34	3000	915010	1464-003	1R5D3	MCB461	MMS.5-23
35	6000	915000	1467-003	1W5D3	MC461	MMS.5-23
36	3000	910170	1468-0001	SW5T1	MC235	MO.5-31
37	100	910100				
38	68	915040	1468-0001	SW5T1	MC235	MO.5-31
39	100	910100	1468-001	1W5D1	MC255	MMS.5-21
40	1000	910180				

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		EMERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
41A	500KΩ	380070	TM230	D13-133X	AT-78	Volume Control
B	Shaft	Not Req.	SS25	E	KSS-3	Attach to 41A per instructions
C	Switch		M26	41	SW-A	
42A	500KΩ	(380360 or 390080)	Not Req.	D13-133	AP-60-Z	Tone Control
B	Shaft			E	KSS-3	Attach to 42A per instructions

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	EMERSON PART No.	IBC PART No.	
43	560Ω	1/4	310430	BTS-560	Grn.-Blue-Br. Parasitic Suppressor
44	4700Ω	1/4	320650	BTS-4700	Yl.-Vi.-Red Antenna Loading
45	220KΩ	1/4	321050	BTS-220K	Red-Red-Yl. AVC Network
46	56KΩ	1/4	370910	BTA-56K	Grn.-Blue-Or. RF Screen Dropping
47	150KΩ	1/4	320290	BW-1-150	Br.-Grn.-Br. RF Cathode
48	220KΩ	1/4	321050	BTS-220K	Red-Red-Yl. AVC Network
49	22KΩ	2	397080	BT-2-22K	Red-Red-Or. Converter Screen Dropping
50	270Ω	1/4	310350	BW-1-270	Red-Vi.-Br. Converter Cathode
51	4700Ω	1/4	340650	BTS-4700	Yl.-Vi.-Red Oscillator Plate Decoupling
52	4700Ω	1/4	340650	BTS-4700	Yl.-Vi.-Red Oscillator Plate Load
53	22KΩ	1/4	310810	BTS-22K	Red-Red-Or. Oscillator Grid
54	10KΩ	1/4	320730	BTS-10K	Br.-Blk.-Or. Oscillator Cathode
55	4700Ω	1/4	320650	BTS-4700	Yl.-Vi.-Red Converter Plate Decoupling
56	150Ω	1/4	320290	BW-1-150	Br.-Grn.-Br. IF Cathode
57	56KΩ	1/4	370910	BTA-56K	Gm.-Blue-Or. IF Screen Dropping
58	1 Meg.	1/4	321210	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
59	4700Ω	1/4	310650	BTS-4700	Yl.-Vi.-Red IF Plate Decoupling
60	1 Meg.	1/4	321210	BTS-1 Meg.	Br.-Blk.-Grn. Tuning Eye Plate Load
61	27KΩ	1/4	310830	BTS-27K	Red-Vi.-Or. Tone Compensation
62	10 Meg.	1/4	321450	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
63	220KΩ	1/4	351050	BTS-220K	Red-Red-Yl. AF Plate Load
64	220KΩ	1/4	351050	BTS-220K	Red-Red-Yl. Phase Inverter Plate Load
65	220KΩ	1/4	321050	BTS-220K	Red-Red-Yl. Phase Inverter Grid
66	220KΩ	1/4	311050	BTS-220K	Red-Red-Yl. Output Grid
67	220KΩ	1/4	311050	BTS-220K	Red-Red-Yl. Output Grid
68	180Ω	2	394140	BW-2-180	Br.-Gray-Br. Output Cathode
69	470Ω	1/4	320410	BTS-470	Yl.-Vi.-Br. Feedback
70	18Ω	1/4	310070	BW-1-18	Br.-Gray-Blk. AF Cathode

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE 10 CURRENT 10000	EMERSON PART No.	STANCOR PART No.	
71	.05A	430Ω	12 Henries	737030	C-1002*	T20C53*

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	EMERSON PART No.	STANCOR PART No.	THORDARSON PART No.	
72	117V AC @ .85A	600V CT @ 1.24A	5.2V AC @ 2.8A	6.3V AC @ 3.5A	730000	P-6313†	T22R05†	†Use universal mounting brackets.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.		EMERSON PART No.	STANCOR PART No.	THORDAR'N PART No.	
	PRI.	SEC.	PRI.	SEC.				
73	9500Ω CT	3.1Ω	550Ω CT	.55Ω	734160	A-3824	T22S56	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	EMERSON PART No.	JENSEN PART No.		
74	PM	3.1Ω	180016	ST-1104	Mod. P6-V	†Drill and tap magnet frame.
75	CONE DIA. 6"	VC DIA. 5/8"	NOT READILY AVAILABLE	REPLACEABLE	USE COMPLETE SPEAKER UNIT.	

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	EMERSON PART No.	MEISSNER PART No.	
76	Loop Ant. "B"	0Ω	0Ω	700110		76A, 76B, 76C in same can.
77	Ant. Coil "C"	1	4.5Ω	710020		77A, 77B, 77C in same can.
78	RF Coil "D"	1	90Ω	713010		78A, 78B, 78C, 78D in same can.
79	osc. Coil "E"	1	2Ω	716110		79A, 79B, 79C, 79D in same can.
80	Input IF	11.5Ω	11.5Ω	720330	16-6658	
81	Output IF	12Ω	12Ω	720340	16-6670	

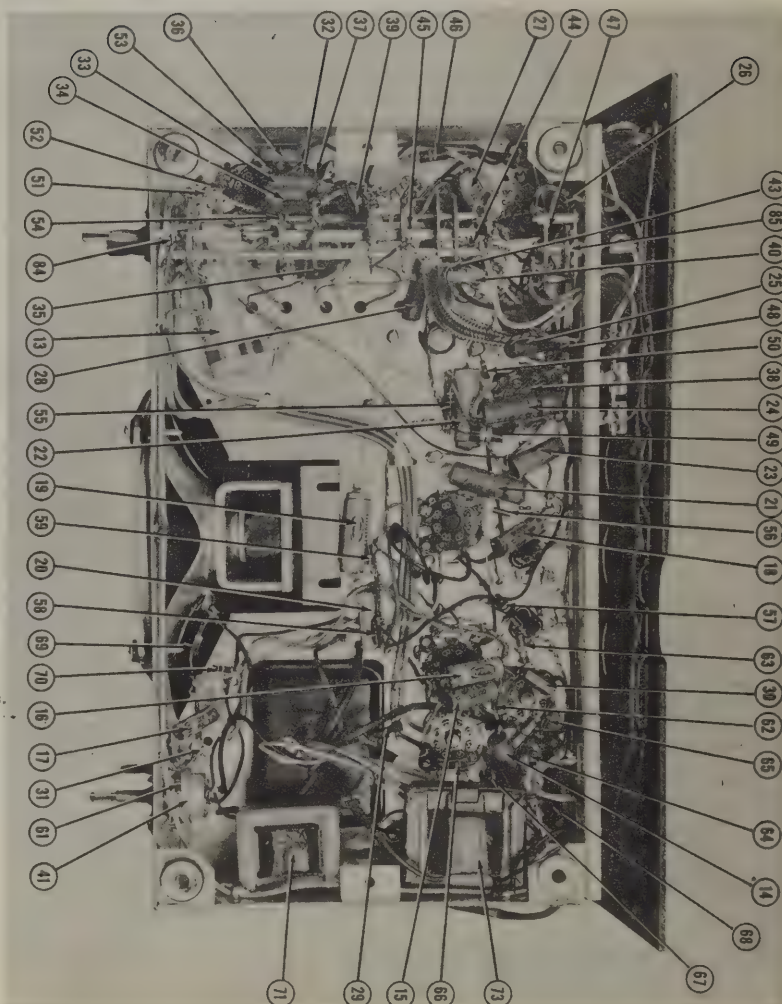
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					EMERSON PART No.		
82	Bayonet	6-8	0.25	Blue	807020		Type 44
83	"	6-8	0.25	"	"		"

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
84	Bandswitch	510280	7 Wafer-5 Position
85	Antenna Switch	510280	3 PBT
86	Tuning Cap.	900200	(13-228 MTF, 13-277MTF) each section

CHASSIS—BOTTOM VIEW



VOLTAGE READINGS

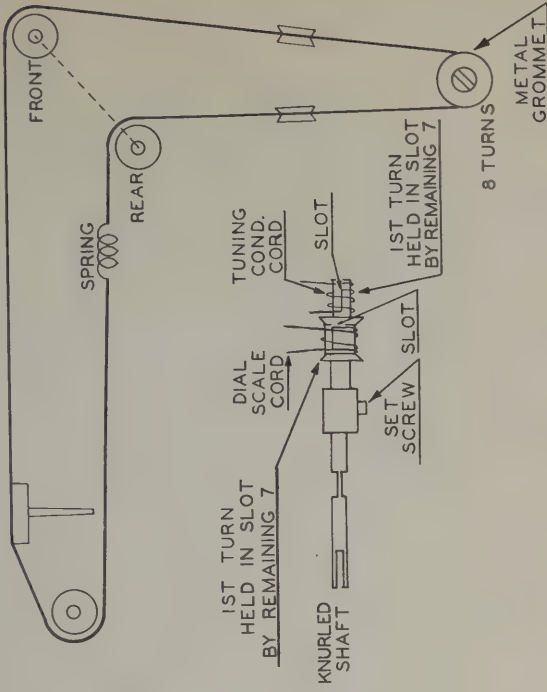
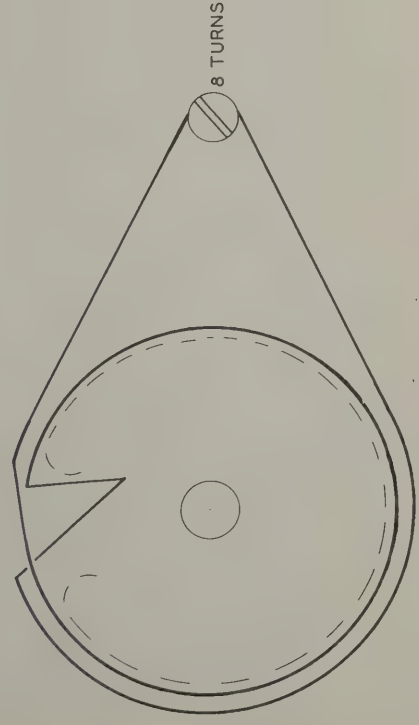
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	OV.	OV.	15VDC	13VDC	15VDC	155VDC	6.3VAC	300VDC
2	6SA7	OV.	OV.	300VDC	95VDC	18VDC	31VDC	6.3VAC	13VDC
3	6J5	OV.	OV.	248VDC	OV.	18VDC	OV.	6.3VAC	OV.
4	6SG7	OV.	OV.	15VDC	OV.	15VDC	124VDC	6.3VAC	248VDC
6	6H6	OV.	OV.	15VDC	OV.	OV.	OV.	6.3VAC	OV.
7	6SL7GT	154VDC	82VDC	OV.	154VDC	105VDC	OV.	6.3VAC	OV.
8	6V6GT	OV.	OV.	308VDC	300VDC	OV.	OV.	6.3VAC	164VDC
9	6V6GT	OV.	OV.	308VDC	300VDC	11VDC	154VDC	6.3VAC	164VDC
10	5U4G	320VDC	320VDC	OV.	292VAC	300VDC	285VAC	OV.	320VDC

RESISTANCE READINGS

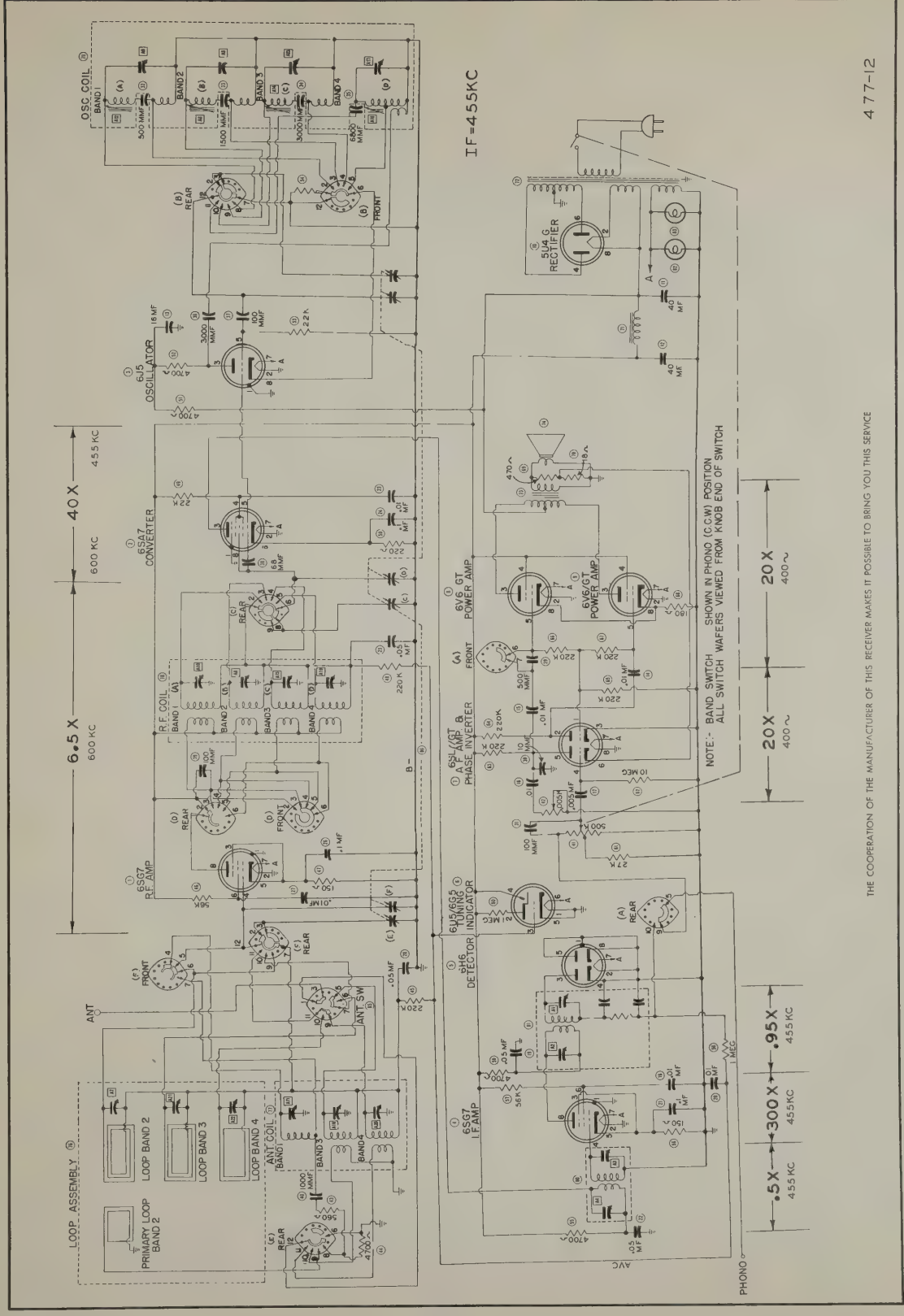
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0Ω	0Ω	120Ω	15MEGΩ	120Ω	150KΩ	1Ω	90KΩ
2	6SA7	0Ω	0Ω	90KΩ	112KΩ	20KΩ	220Ω	1Ω	15MEGΩ
3	6J5	0Ω	0Ω	90KΩ	1NΩ	20KΩ	0Ω	1Ω	1.8Ω
4	6SG7	0Ω	0Ω	120Ω	10Ω	120Ω	148KΩ	1Ω	90KΩ
6	6H6	0Ω	0Ω	440KΩ	0Ω	0Ω	390KΩ	1Ω	0Ω
7	6SL7GT	190KΩ	320KΩ	0Ω	10MEGΩ	320KΩ	15Ω	1Ω	0Ω
8	6V6GT	0Ω	0Ω	90KΩ	90KΩ	400KΩ	400KΩ	1Ω	160Ω
9	6V6GT	0Ω	0Ω	90KΩ	90KΩ	400KΩ	190KΩ	1Ω	160Ω
10	5U4G	90KΩ	90KΩ	1NΩ	41Ω	90KΩ	45Ω	1NΩ	90KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

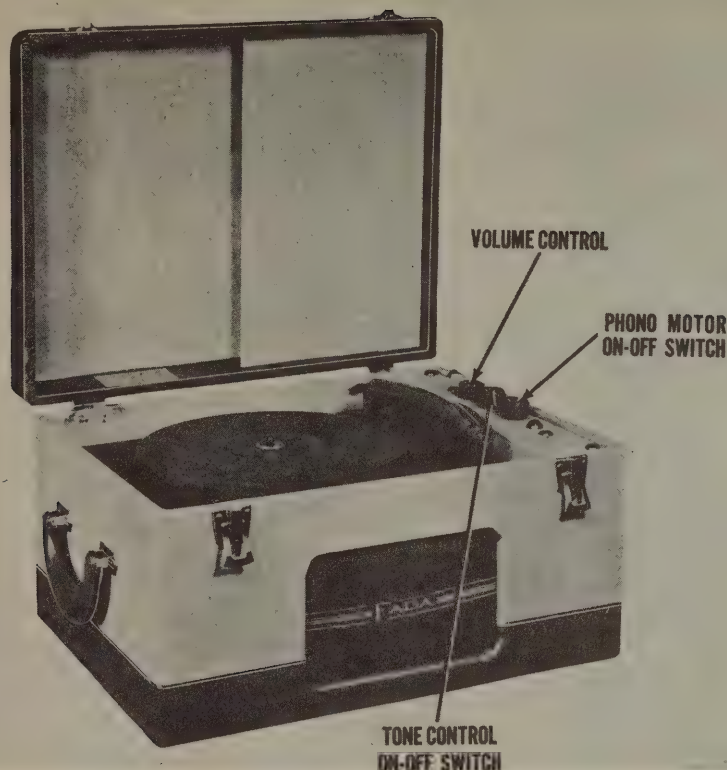
- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of ±10% in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVES



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



FADA MODEL 633

TRADE NAME	Fada, Model 633
MANUFACTURER	Fada Radio & Electric Co., Inc., Long Island City, N.Y.
TYPE SET	AC Operated Portable Phonograph with 4 Tube Amplifier and Speaker
TUBES (FOUR)	Types, 12SL7GT/G Phase Inverter - AF Amp., (2) 35L6GT/G Power Output, 35Z5GT/G Rectifier.
POWER SUPPLY	105-120 Volts AC
RATING	.260 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SL7GT/G	OV.	80V.DC	13V.DC	75V.DC	45V.DC	OV.	OV.	12V.AC
2	35L6GT/G	OV.	46V.AC	112V.DC	107V.DC	18V.DC	OV.	12V.AC	62V.DC
3	35L6GT/G	OV.	46V.AC	112V.DC	107V.DC	18V.DC	112V.DC	82V.AC	62V.DC
4	35Z5GT/G	OV.	117V.AC	113V.AC	OV.	113V.AC	117V.AC	87V.AC	117V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SL7GT/G	500K Ω	120K Ω	4700 Ω	105K Ω	140K Ω	0 Ω	0 Ω	12 Ω
2	35L6GT/G	0 Ω	41 Ω	25K Ω	25K Ω	210K Ω	22 Ω	12 Ω	90 Ω
3	35L6GT/G	INF.	41 Ω	25K Ω	25K Ω	210K Ω	25K Ω	70 Ω	90 Ω
4	35Z5GT/G	INF.	120 Ω	117 Ω	INF.	117 Ω	120 Ω	97 Ω	25K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

FADA
MODEL 633

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA				INSTALLATION NOTES
		FADA PART No.	STANDARD REPLACEMENT	RMA BASE TYPE		
1	Phase Inv.-AF	12SL7GT/G	12SL7GT/G	8BD		
2	Power Output	35L6GT/G	35L6GT/G	7AC		
3		35L6GT/G	35L6GT/G	7AC		
4	Rectifier	35Z5GT/G	35Z5GT/G	6AD		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		FADA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
5A	30	22.10	FRS150-40	EZ42215	TN129	DSB-403020-150
B	40		FRS150-20			
C	20		FRS25-25			
6A	25		FRS25-25			
B	25		484-05			
7	.05	400	484-05			
8	.03	400	484-03			
9	.005	600	684-005			
10	.005	600	684-005			
11	.005	600	684-005			
12	.25	400	484-25			

*Used in Underwriters approved sets only.

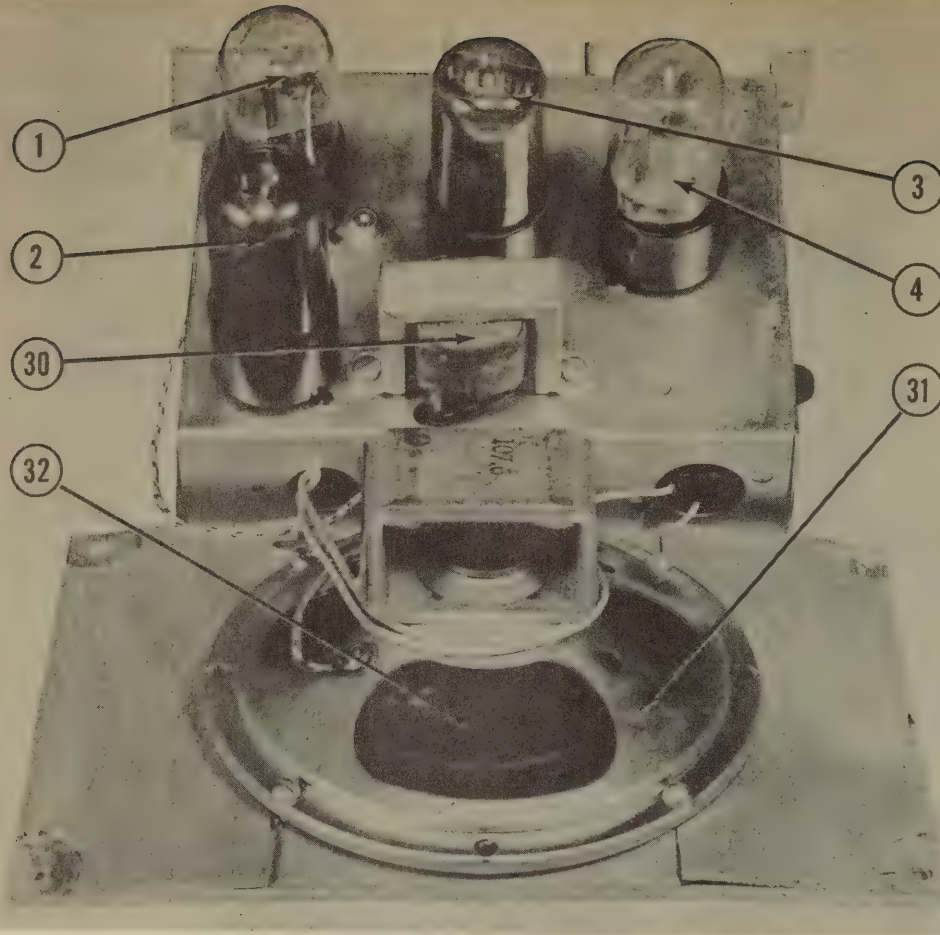
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		FADA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
13A	500K Ω	52.7	MR43	D13-133	M-60-Z	Volume Control
B	500K Ω	57.1	MR48	D13-133	M-60-Z	Attach to 13A per instructions
14A	500K Ω					Tone Control
B	Switch					Attach to 14A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		FADA PART No.	MALLORY PART No.	IRC PART No.		
15	220K Ω	32.18	BTS-220K			Red-Red-Yl. Phono Shunt
16	220K Ω	32.18	BW-270			Red-Red-Yl. Line Isolating-See Note 1
17	270 Ω	32.49	BW-270			Red-Vl.-Blk. Feedback
18	270 Ω	32.50	BW-270			Red-Vl.-Br. AF Cathode
19	270 Ω	32.9	BTS-4700			Yl.-Vl.-Red. AF Cathode
20	100K Ω	32.17	BTS-100K			Br.-Blk.-Yl. AF Plate Load
21	100K Ω	32.17	BTS-100K			Br.-Blk.-Yl. Phase Inverter Plate Load
22	100K Ω	32.17	BTS-100K			Br.-Blk.-Yl. Phase Inverter Grid
23	100K Ω	32.17	BTS-100K			Br.-Blk.-Yl. Output Grid
24	100K Ω	32.17	BTS-100K			Br.-Blk.-Yl. Output Cathode
25	100 Ω	32.53	BW-100			Br.-Blk.-Br. Filter
26	200 Ω	32.27	BTA-1200			Red-Red-Red Filter
27	1200 Ω	32.29	BTA-1200			Br.-Grn.-Br. Pilot Light Shunt
28	150 Ω	32.4	BW-150			Br.-Blk.-Blk. Line Dropping
29	30 Ω	117.1	BW-133			

Note 1 - Not used in all models.



PARTS LIST AND DESCRIPTIONS (Continued) **TRANSFORMER (OUTPUT)**

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.		FADA PART No.	STANCOR PART No.	THORDARN PART No.	
	PRI	SEC.	PRI	SEC.				
	CT	CT	CT	CT				
30	4700Ω CT	3.1Ω	240Ω CT	.9Ω	42.4	A-3856	T22846	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
			FADA PART No.	JENSEN PART No.	
31	FIELD PM	VC IMP. 3.1Ω	107.6	ST-105 Mod. P5-X	
32	CONE DIA. VC DIA. 4-3/4" 1/2"		NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT.		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					FADA PART No.		
33	Bayonet	6-8	0.15	Brown	122.1		Type 47

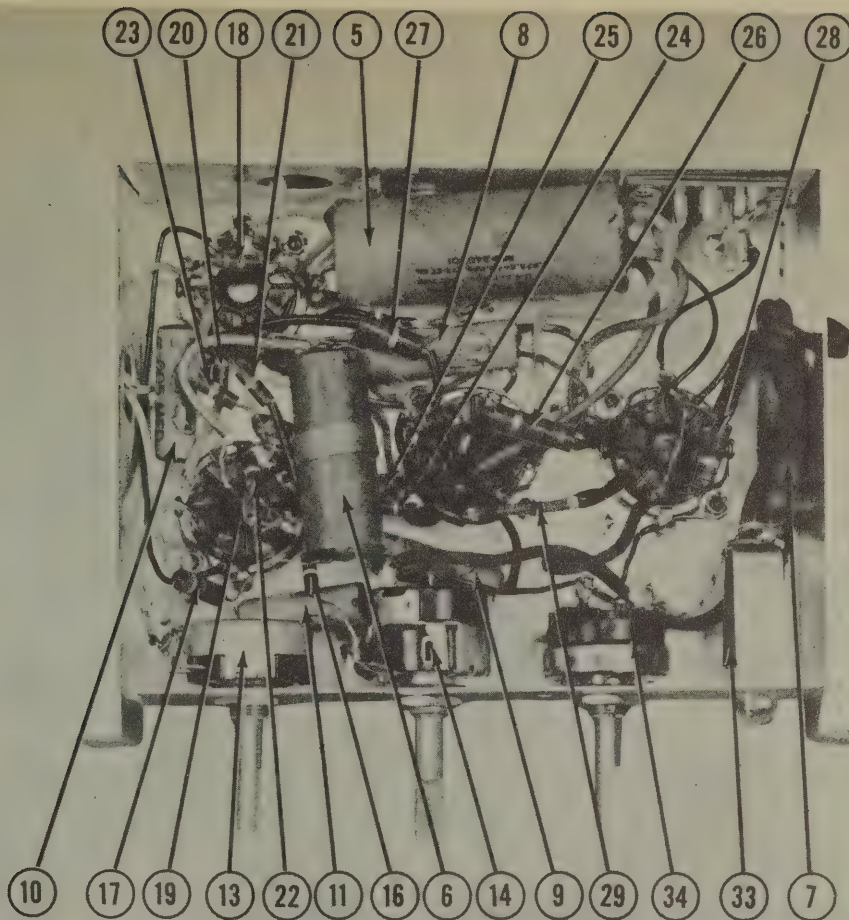
MISCELLANEOUS

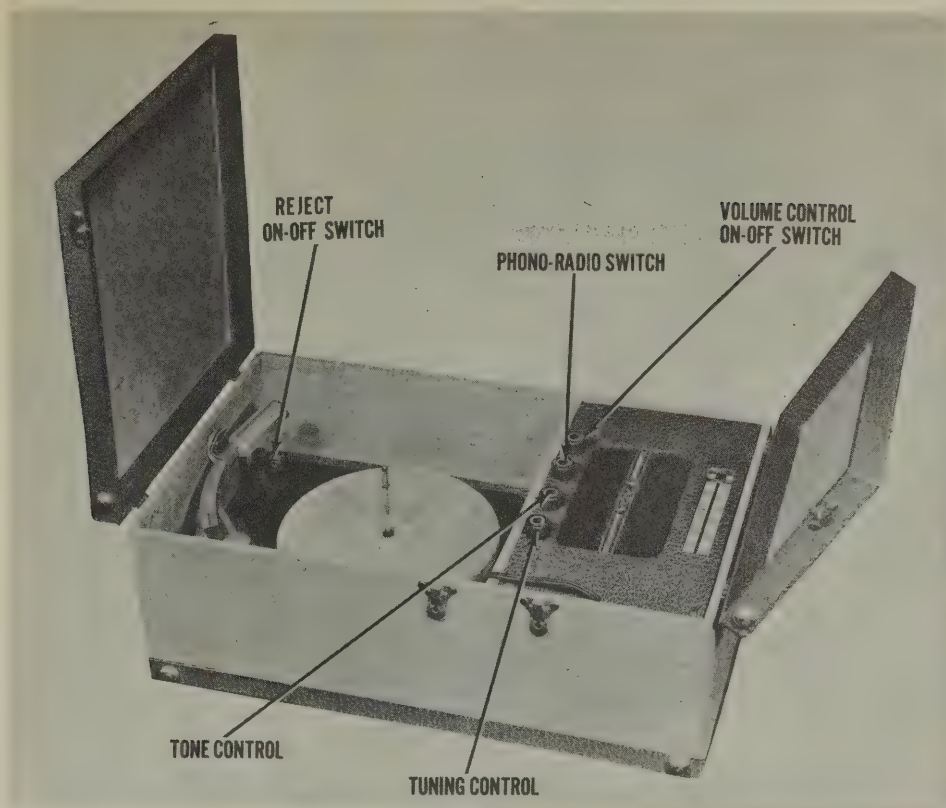
ITEM No.	PART NAME	FADA PART No.	NOTES
34	Switch	47.3	Motor On-Off

DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type control knobs from cabinet.
2. Remove six Phillips head screws holding top mounting board. Lift up complete assembly.
3. Unsolder phono-motor leads.
4. Unsolder phono-pickup leads.
5. Unsolder lead from phono frame to chassis.
6. Remove two Phillips head screws holding chassis.
7. Remove four screws holding speaker. Remove chassis and speaker.

CHASSIS—BOTTOM VIEW





FADA MODEL 637

TRADE NAME Fada, Model 637 MANUFACTURER Fada Radio & Electric Co., Inc., Long Island City, N.Y. TYPE SET AC Operated Portable Phono-Radio Combination Superheterodyne-Loop Antenna TUBES (SIX) Types, 12BA6 RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT/G Power Output, 35Z5GT/G Rectifier.						
POWER SUPPLY 110-120 Volts AC TUNING RANGE—BROADCAST 528-1680KC RATING .230 Amp. @ 117 Volts AC						
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screw-driver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD. to reduce hum modulation.
.1 MFD.	"	"	Tuning cap. fully closed.	"	A5	Adjust for minimum output.
.1 MFD.	"	1680KC	Tuning cap. fully open.	"	A6	Adjust for maximum output.
	Loop	1500KC	Tune for maximum output.	"	A7	Fashion loop of several turns of wire and radiate signal into receiver loop. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

FADA
MODEL 637

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		FADA PART No.	STANDARD REPLACEMENT		
1	RF Amp.	12BA6	12BA6	7CC	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	35L6GT/G	35L6GT/G	7AC	
6	Rectifier	35Z5GT/G	35Z5GT/G	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

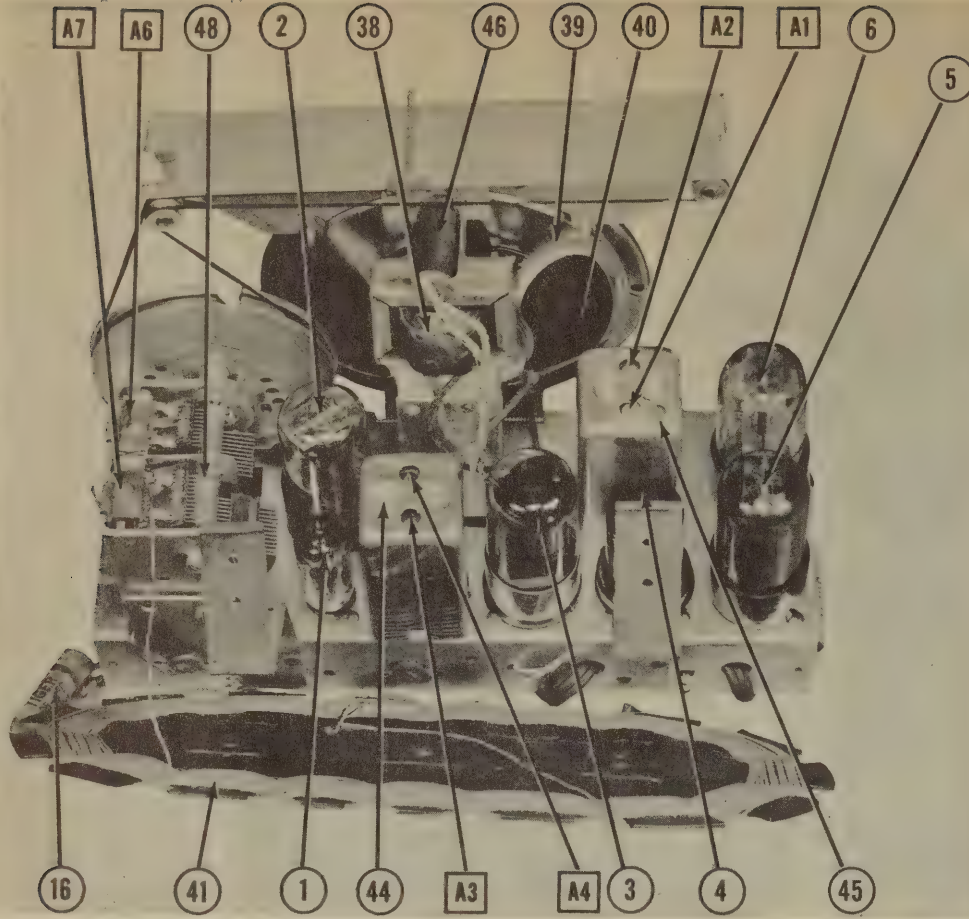
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		FADA PART No.	AEROVOX PART No.	CORNEILL-DUBILIER PART No.	MALLORY PART No.	
7A	CAP. 30	22.4	FR3A150-40	E242215	TN129	TA-430
B	40		30			UT-201
C	150		PR3150-20			TC-15
8	.05	12.12	484-05	DT455	TP426	S-4-05
9	.03	12.9	484-03	DT453	TP424	S-6-03
10	.005	12.4	684-005	DT605	TP408	S-6-005
11	.01	12.6	684-01	DT651	TP410	S-6-01
12	.005	12.4	684-005	DT605	TP408	S-6-005
13	.005	12.4	684-005	DT605	TP408	S-6-005
14	.05	12.11	484-05	DT455	TP426	S-4-05
15	.05	12.11	484-05	DT455	TP426	S-4-05
16	.05	12.12	484-05	DT455	TP426	S-4-05
17	.05	12.11	484-05	DT455	TP426	S-4-05
18	250	17.8	1468-00025	5W5725	M2240	M-5-325
19	220	17.19	1468-0002	5W532	M2337	M-5-322
20	100	17.5	1468-0001	5W571	M2335	M-5-31
21	100	17.5	1468-0001	5W571	M2335	M-5-31

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		FADA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22A	500K Ω	52.2A	NR48	D13-133	M-60-Z	Volume Control
B Shaft	1	Not Req.	Not Req.	A	Not Req.	Attach to 22A per instructions
23A	500K Ω	57.2	NR48	D13-133	M-60-Z	Tone Control
B Shaft	1	Not Req.	Not Req.	A	Not Req.	Attach to 23A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		FADA PART No.	IRC PART No.	
24	338	32.43	BW-1-33	Or.-Or.-Blk. RF Cathode
25	4700 Ω	32.9	BTS-4700	YL-VI.-Red RF Plate Load
26	100K Ω	32.17	BTS-100K	Br.-Blk.-Yl. Converter Grid
27	22K Ω	32.5	BTS-22K	Red-Red-Or. Oscillator Grid
28	220 Ω	32.5	BW-1-220	Red-Red-Br. IF Cathode
29	1 Meg.	32.53	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
30	3.9 Meg.	32.26	BTS-3.9 Meg.	Or.-White-Grn. AF Grid
31	220K Ω	32.18	BTS-220K	Red-Red-Yl. AF Plate Load
32	470K Ω	32.20	BTS-470K	YL-VI.-Yl. Output Grid
33	130 Ω	32.3	BW-1-120	Br.-Or.-Br. Output Cathode
34	220K Ω	32.18	BTS-220K	Red-Red-Yl. Phono Shunt
35	910 Ω	32.28	BTA-910	White-Br.-Br. Filter
36	200 Ω	32.27	BW-1-220	Red-Blk.-Br. Filter
37	308	117.1	BW-1-33	Or.-Blk.-Blk. Line Dropping



PARTS LIST AND DESCRIPTIONS (Continued) TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	FADA PART No.	THORDARN PART No.	
38	1830Ω	2.9Ω	190Q	.69Q	
					*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	FADA PART No.	JENSEN PART No.	
39	PM	2.9Q	107.9	ST-1051	
				Mod. PE-X	†Fabricate new mounting bracket.
40	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

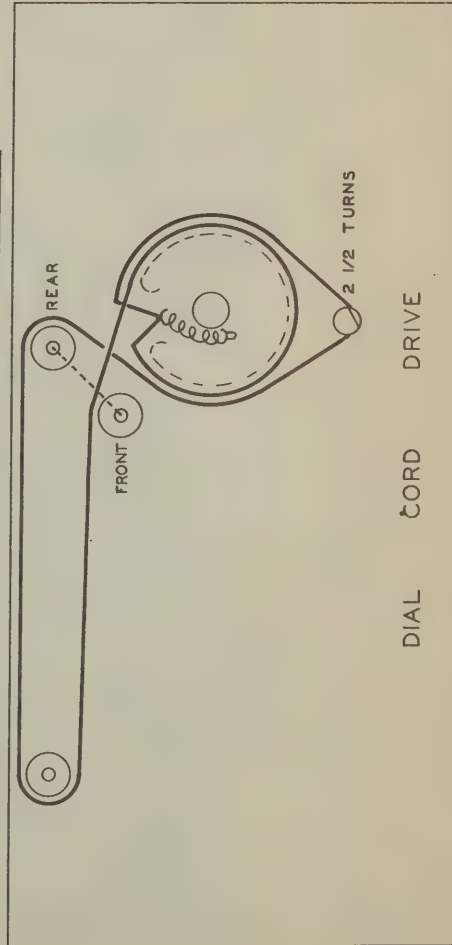
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	FADA PART No.	MEISSNER PART No.
41	Loop Ant.	1.2Q		37.9	
42	Osc. Coil	.5Q	5Q	37.1	14-1040
43	Wave Trap	52Q	37.5	37.3	16-6658
44	Input IF	20Q	23Q	37.3	16-6660
45	Output IF	23Q	23Q	37.33X	

DIAL LIGHT

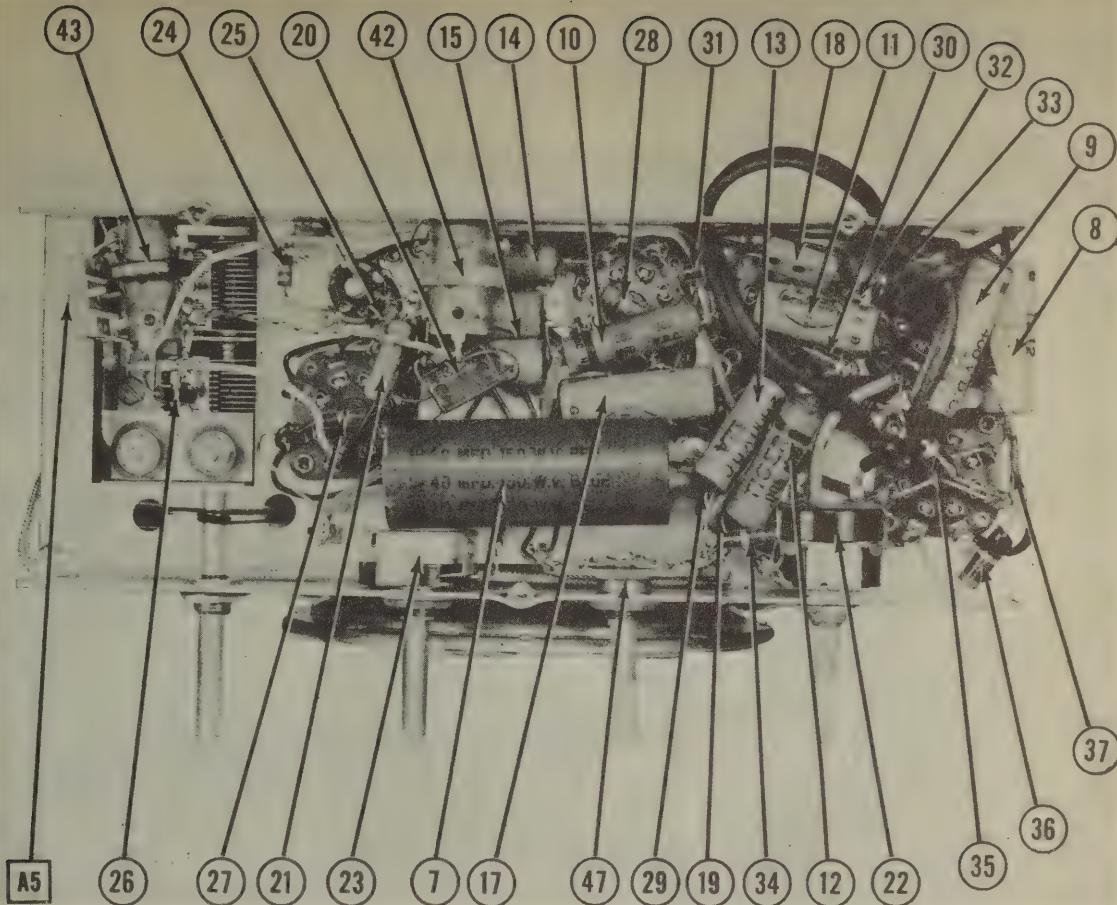
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	FADA PART No.	
46	Bayonet	6-8	0.15	Brown	122.1	Type 47

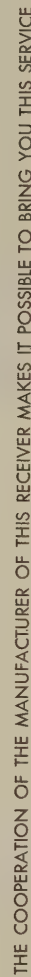
MISCELLANEOUS

ITEM No.	PART NAME	FADA PART No.	NOTES
47	Switch	27-3	Radio-Phono
48	2 Gang Var. Cap		(23-404 YMF), (33-2130TF)

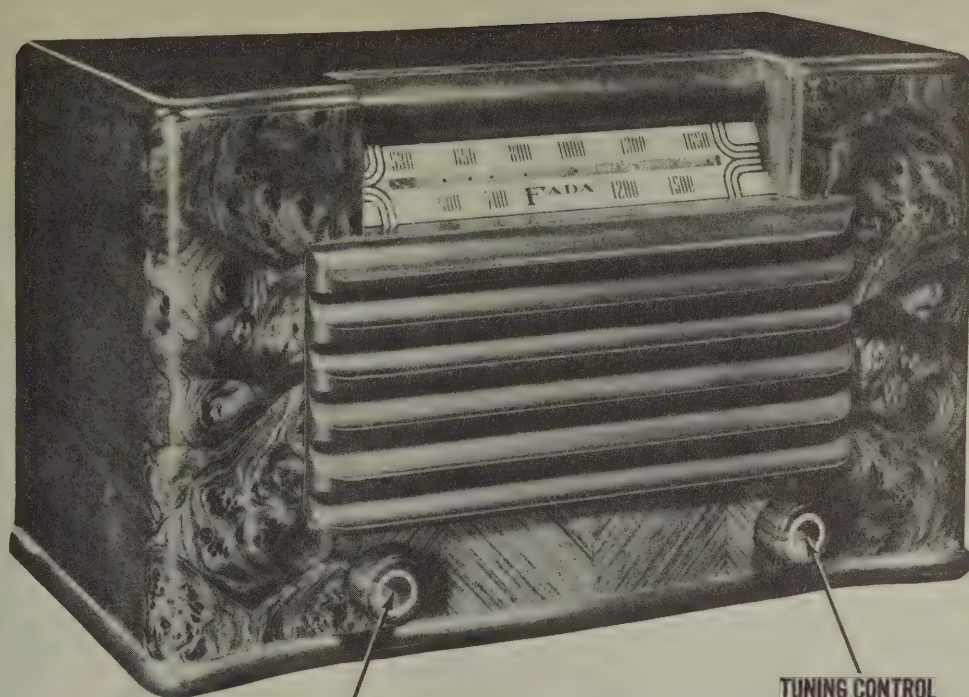


CHASSIS—BOTTOM VIEW





1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

FADA MODEL 1001

TRADE NAME Fada, Model 1001
MANUFACTURER Fada Radio & Elect. Co., Inc., Long Island City, N.Y.
TYPE SET AC-DC Operated Superheterodyne - Self Contained Loop Antenna
TUBES (SIX) Types, 12BA6 RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY

TUNING RANGE—BROADCAST

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screw-driver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	456KC	Tuning cap. fully open.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD to reduce hum modulation.
.1 MFD.	"	"	"	"	A5	Adjust for minimum output.
	Loop	1680KC	"	"	A6	Fashion loop of several turns of wire and radiate signal in to loop of receiver. Adjust for maximum output.
	"	1400KC	Tune for maximum output.	"	A7	Adjust for maximum output.

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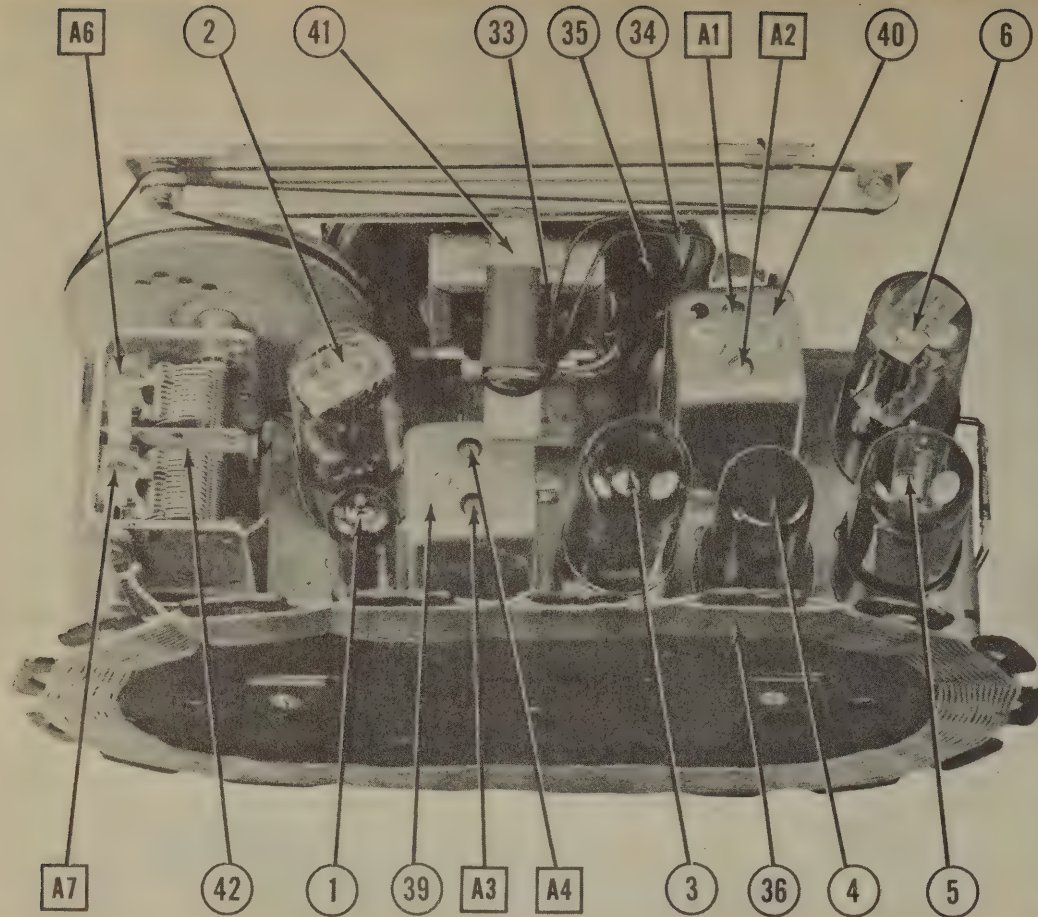
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4/47 477-15

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

FADA
MODEL 100J

CHASSIS—TOP VIEW



ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		FADA PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp. Converter	12BA6	12BA6	70C	
2	IF Amp.	12SA7GT	12SA7GT	8AD	
3	Det.-AVC-AF	12SK7GT	12SK7GT	8N	
4	Power Output	12SQ7	12SQ7	8Q	
5	Rectifier	35L6GT	35L6GT	7AC	
6		35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		FADA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
7A	CAP. 30	22.4	PRS150-40-30	EZ42215	FP257	TA-430 Filter - Red UT-201 " - Blue " - Yellow
7B	40					
7C	150					
8	.05	12.12	484-05	D7485	TP426	TC-15 Line Filter
9	.03	12.9	484-03	D7483	TP424	TC-13 Output Plate Bypass
10	.01	12.6	484-01	D7481	TP421	TC-11 Audio Coupling
11	.005	12.4	684-005	D76D5	TP408	TC-25 IF Cath. Bypass
12	.05	12.11	484-05	D7485	TP426	TC-15 RF Bypass Pwr. Supp.
13	.05	200	484-05	D7485	TP426	TC-15 AVC Filter
14	.05	200	484-05	D7485	TP426	TC-15 Audio Plate Bypass
15	250	17.8	1468-00025	SW5025	MC240	LFM-325 IF Bypass Vol. Cont.
16	220	17.9	1468-0002	SW502	MC237	LFM-31 Osc. Grid Capacitor
17	100	17.5	1468-0001	SW501	MC235	LFM-31 RF Coupling
18	100	17.5	1468-0001	SW501	MC235	LFM-31 RF Coupling

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		FADA PART No.	MALLORY PART No.	IRC PART No.	
19A	500KΩ B Shaft C Switch	52.2A Not Req.	MR48 Not Req.	D13-133 A 41	Volume Control Not Req. Attach to 19A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		FADA PART No.	MALLORY PART No.	IRC PART No.	
20	33Ω	32.43	BM-1-33	BM-1-33	Or.-Or.-Blk. RF Cathode
21	4700Ω	32.9	BTS-4700	BTS-4700	Yl.-Vl.-Red RF Plate Load
22	100KΩ	32.17	BTS-100K	BTS-100K	Br.-Blk.-Vl. Converter Grid
23	22KΩ	32.13	BTS-22K	BTS-22K	Red-Red-Or. Oscillator Grid
24	220Ω	32.5	BM-1-220	BM-1-220	Red-Red-Br. IF Cathode
25	1 Meg.	32.23	BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
26	3.9 Meg.	32.26	BTS-3.9 Meg.	BTS-3.9 Meg.	Or.-White-Grn. AF Grid
27	220KΩ	32.18	BTS-220K	BTS-220K	Red-Red-Vl. AF Plate Load
28	470KΩ	32.20	BTS-470K	BTS-470K	Yl.-Vl.-Vl. Output Grid
29	130Ω	32.3	BM-1-150	BM-1-150	Br.-Or.-Br. Output Cathode
30	200Ω	32.27	BTA-200	BTA-200	Red-Blk.-Br. Filter
31	910Ω	32.28	BTA-910	BTA-910	White-Br.-Br. Filter
32	30Ω	117.1	BM-1-33	BM-1-33	Or.-Blk.-Blk. Line Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		FADA PART No.	STANCOR PART No.	THORDARN PART No.	
33	IMPEDANCE PRL SEC. 2150Ω 3.4Ω 190Ω	DC RES. PRL SEC. .69Ω	42.1	A-3878*	T22S45*

*Bend mounting tabs down, file out slots and mount on original bracket.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA	INSTALLATION NOTES
	FIELD	FADA PART No.	JENSEN PART No.
34	PM 3.4Ω	107.4	ST-113
35	CONC DIA. VC DIA. 1/2"		Mod. P4-X
			NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT

R F COILS

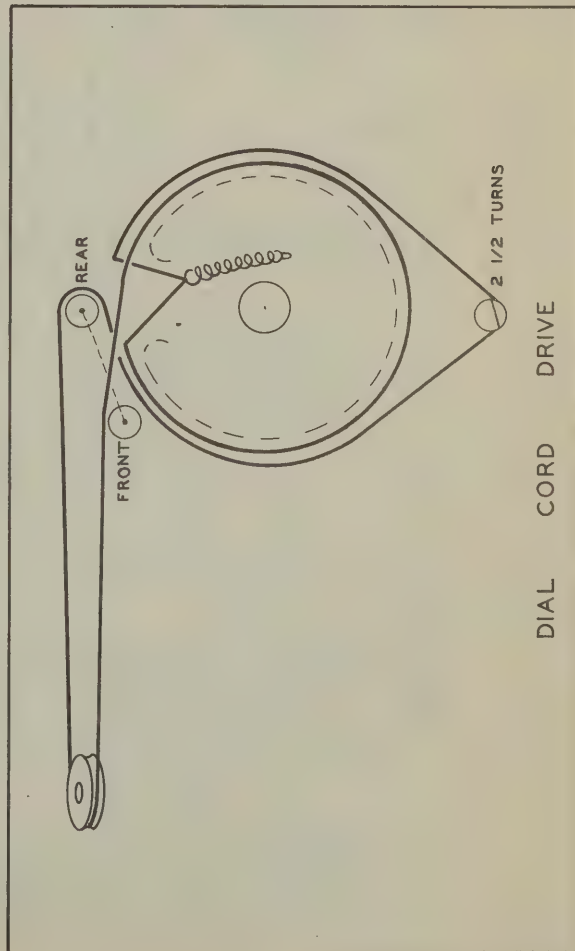
ITEM No.	USE	DC RES.	REPLACEMENT DATA	FADA PART No.
		PRI.	SEC.	
36	Loop Ant.	1.2Ω	37.9	37.9
37	Wave Trap	52Ω	37.5	37.5
38	Osc. Coil	5.5Ω	37.1	37.1
39	Input IF	20Ω	20Ω	20Ω
40	Output IF	25Ω	37.3	37.3

DIAL LIGHT

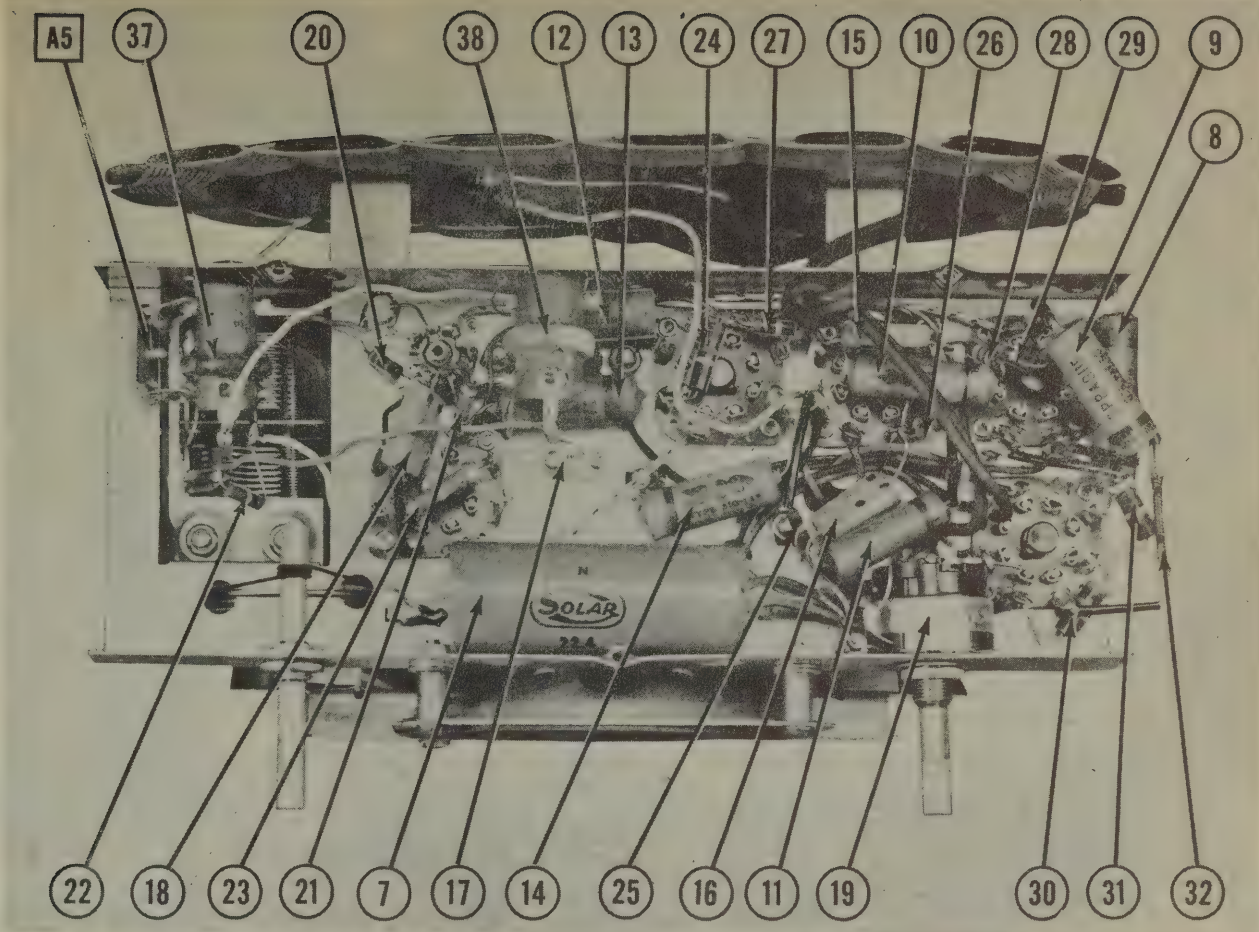
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA	INSTALLATION NOTES
				BEAD COLOR	
41	Bayonet	6-8	0.15	Brown	Type 47

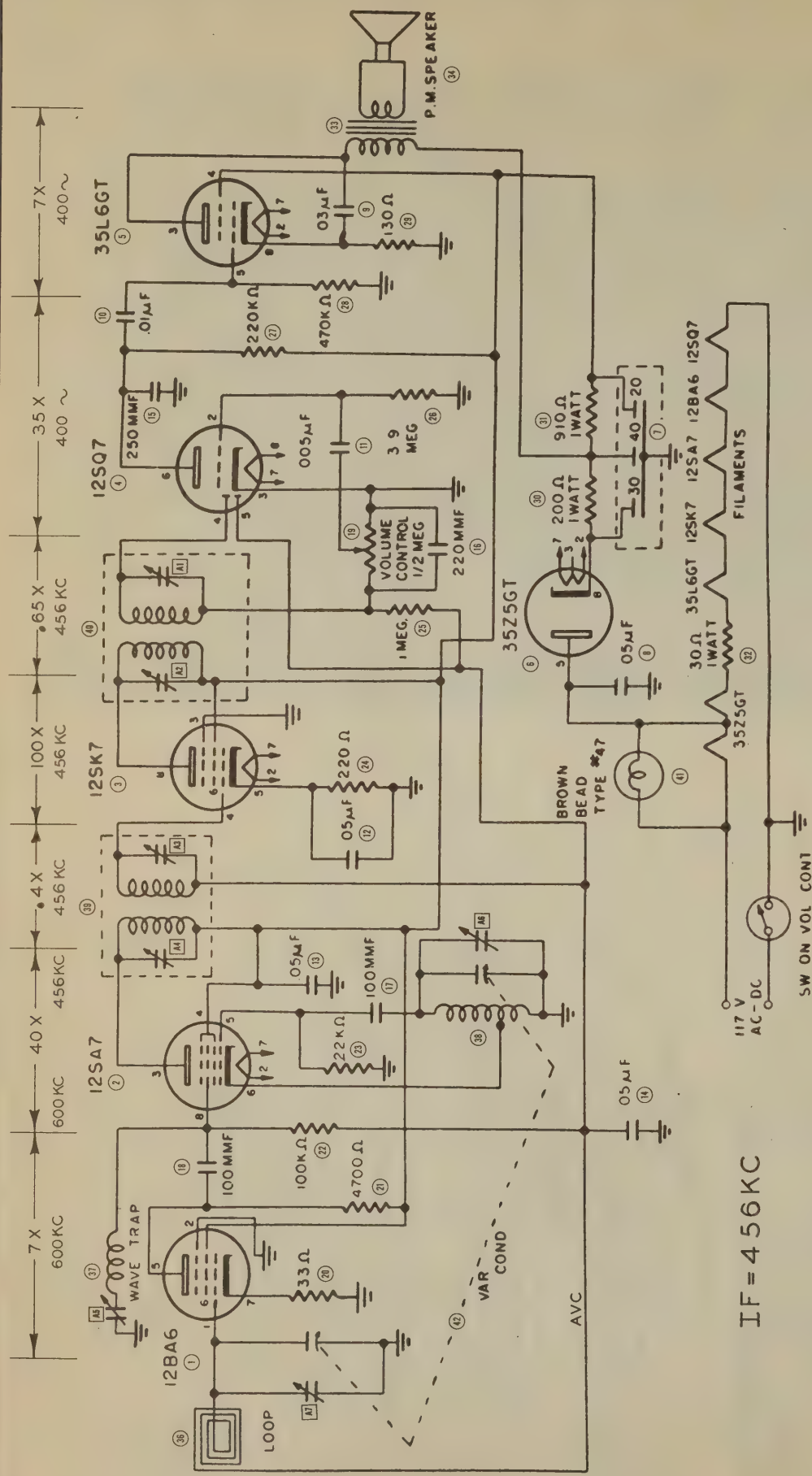
MISCELLANEOUS

ITEM No.	PART NAME	FADA PART No.	NOTES
42	2 Gang Var. Cap	27.3	23-404 MTF, 33-213MTF



CHASSIS—BOTTOM VIEW





IF = 456 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BA6	OV	OV	12VAC	24VAC	44VDC	82VDC	4VDC	Pin 8
2	12SA7	OV	OV	24VAC	82VDC	-6VDC	OV	36VAC	-05VDC
3	12SK7	OV	OV	36VAC	OV	2VDC	82VDC	48VAC	82VDC
4	12SQ7	OV	OV	-65VDC	OV	-3VDC	OV	57VDC	OV
5	35L6GT	OV	OV	80VAC	107VDC	82VDC	OV	48VAC	44VDC
6	35Z5GT	112VDC	117VAC	113VAC	OV	113VAC	112VDC	85VAC	125VDC

RESISTANCE READINGS

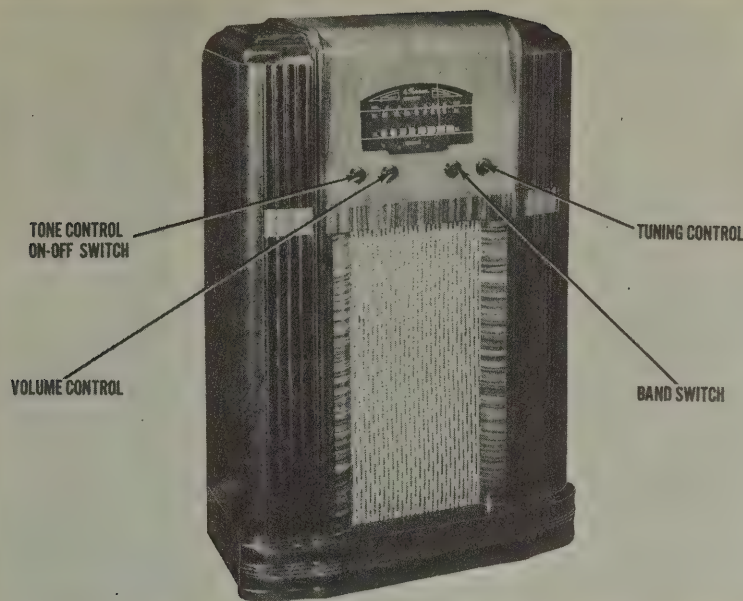
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BA6	4 MEG	0	11	24	115K	110K	30	30
2	12SA7	0	0	11	110K	10K	20K	5	32
3	12SK7	0	0	32	0	4 MEG	200	10K	42
4	12SQ7	0	0	32 MEG	0	500K	4 MEG	30K	0
5	35L6GT	INF	74	110K	10K	40K	INF	42	120
6	35Z5GT	110K	125	120	110K	10K	100	10K	10K

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS 477-15

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



FERRAR MODEL C-81-B

TRADE NAME Ferrar, Model C-81-B
 MANUFACTURER Ferrar Radio & Television Corp., 55 West 26th St., New York 10, N.Y.
 TYPE SET AC-DC Operated 2 Band Superheterodyne Rcvr.-Self Contained Loop Antenna
 TUBES (EIGHT) Types, 14A7 RF Amp., 14Q7 Converter, 14R7 IF Amp. Det.-AVC, 12SL7GT Phase Inv.-AF, (2) 50L6GT Power Output, (2) 35Y4 Rectifier.

POWER SUPPLY 110-120 Volts AC
 TUNING RANGE—BROADCAST 540-1725KC

RATING .650 Amp. @ 117 Volts AC
 SHORT WAVE 5.7-21MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer 2-1/16" from left end of dial backplate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	456KC	BC	Tuning cap. fully open.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
400Ω	High side to ext. ant. lug. Low side to ext. ground lug.	16MC	SW	6-9/16" from left end of dial backplate.	"	A5	Adjust for maximum output
400Ω	"	"	"	Tune for maximum output.	"	A6,A7.	Rock tuning cap. and adjust for maximum output.
400Ω	"	10MC	"	4-15/16" from left end of dial backplate.	"	A8	Adjust for maximum output. Repeat last three steps for optimum performance.
200MMFD	"	1600KC	BC	7-3/16" from left end of dial backplate.	"	A9	Adjust for maximum output
200MMFD	"	1450KC	"	Tune for maximum output.	"	A10,A11	" " " "
200MMFD	"	1000KC	"	5-1/8" from left end of dial backplate.	"	A12	" " " "
200MMFD	"	600KC	"	Tune for maximum output.	"	A13	Rock tuning cap and adjust for maximum. Repeat last four steps until no further increase in output is obtained.

FERRAR
MODEL C-81-B

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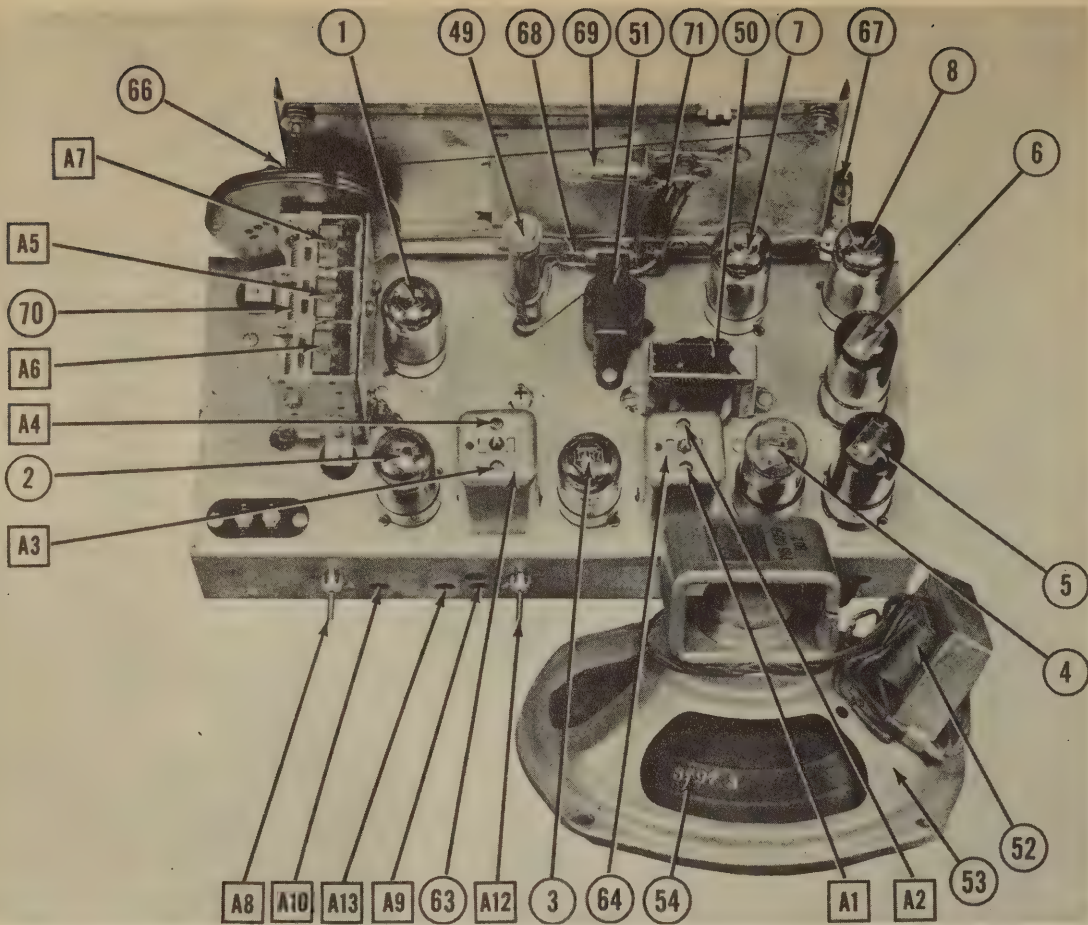
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PARTS LIST AND DESCRIPTIONS

FERRAR
MODEL C-81-B

CHASSIS—TOP VIEW



TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		FERRAR PART No.	STANDARD REPLACEMENT	
1	RF Amp.	14A7	14A7	
2	Converter	14Q7	14Q7	
3	IF Amp.-Det.-AVC	14R7	14R7	
4	Phase Inv.-AF	12SL7GT	12SL7GT	
5	Power Output	50L6GT	50L6GT	
6	Rectifier	50L6GT	50L6GT	
7		35Y4	35Y4	
8		35Y4	35Y4	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		FERRAR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	
9A	30 CAP.	150	PRS150-30	EZ44315C	UT-301	Filter - Green
B	40	150	PRS150-40		TA-440	" - Red
C	40	150			TA-25	Cath. Bypass
10A	25	25	PRS25-25	BRD202A	TC-1	Line Filter
B	25	25	484-1	DT4P1	TC-26	Audio Coupling
11	1.006	400	484-1	DT4P1	TC-28	Tone Compensation
12	1.006	400	484-1	DT4P1	TC-15	Audio Coupling
13	1.006	400	484-1	DT4P1	TC-15	AVC Filter
14	1.006	400	484-1	DT4P1	TC-15	RF Cath. Bypass
15	1.006	400	484-1	DT4P1	TC-15	RF Bypass Pwr. Supp.
16	1.006	400	484-1	DT4P1	TC-1	AVC Filter
17	1.006	400	484-1	DT4P1	TC-1	Ext. Grid. Isolation
18	1.006	400	484-1	DT4P1	TC-1	Tone Compensation
19	1.006	400	484-1	DT4P1	TC-1	Diode Filter
20	1.006	400	484-1	DT4P1	TC-1	AVC Coupling
21	1.006	400	484-1	DT4P1	TC-1	Osc. Grid Capacitor
22	1.006	400	484-1	DT4P1	TC-1	Fixed Padder
23	1.006	400	484-1	DT4P1	TC-1	RF Coupling
24	1.006	400	484-1	DT4P1	TC-1	
25	1.006	400	484-1	DT4P1	TC-1	
26	1.006	400	484-1	DT4P1	TC-1	
27	1.006	400	484-1	DT4P1	TC-1	
28	1.006	400	484-1	DT4P1	TC-1	
29	1.006	400	484-1	DT4P1	TC-1	

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		FERRAR PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
30A	500K2	1	NR48	DL13-133	M-60-Z	Volume Control
B	500K2	1	NR48	DL13-133	Not Req.	Attach to 30A per instructions
31A	500K2	1	NR48	DL13-133	Not Req.	Tone Control
B	500K2	1	NR48	DL13-133	Not Req.	Attach to 31A per instructions
C	Switch		M26	41	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		FERRAR PART No.	IRC PART No.	
32	100K2		BTS-100K	Br.-Blk.-Yl. AVC Network
33	300K		BW-3-330	Or.-Br.-Br. RF Cathode
34	20K2		BTS-22K	Red-Blk.-Or. Oscillator Grid
35	510K		BTS-470	Grn.-Br.-Br. IF Cathode
36	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. AVC Diode Load
37	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
38	510K2		BTS-470K	Grn.-Br.-Yl. AVC Load
39	510K		BTS-470K	Grn.-Br.-Or. Diode RF Filter
40	12K2		BTS-12K	Br.-Red-Or. AF Cathode
41	15K2		BTS-15K	Br.-Grn.-Or. Phase Inverter Grid
42	250K2		BTS-270K	Red-Grn.-Yl. Phase Inverter Plate Load
43	250K2		BTS-270K	Red-Grn.-Yl. AF Plate Load
44	470K2		BTS-470K	Yl.-Vl.-Yl. Output Grid

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	FERRAR PART No.	IRC PART No.	
45	470K Ω	1	BTS-470K	VI.-VI.-VI. Output Grid	
46	100 Ω	1	BW-1-100	Br.-Blk.-Br. Output Cathode	
47	47 Ω	2	BW-2-47	VI.-VI.-Blk. Line Dropping	
48	47 Ω	2	BW-2-47	VI.-VI.-Blk. Line Dropping	
49	670 Ω	20	DHA-750		
71	47 Ω	2	BW-2-47	VI.-VI.-Blk. Pilot Light Shunt-See Note 2	

Note 1-On IRC replacement set slider at 670 Ω from one end.
Note 2-Not used in later productions.

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (1000 μ)	STANCOR PART No.	
50	.037A	160 Ω	6 Henries	C-1080	T20052
51	.031A	300 Ω	5 Henries	C-1706	T20052

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	FERRAR PART No.	THORDAR'N PART No.	
52	3400 Ω	7.4 Ω	160 Ω	A-3825	T22S60
53	CT	CT	CT		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	FERRAR PART No.	JENSEN PART No.	
53	PM	7.4 Ω	ST-104	ST-104	
54	7-1/2"	15/16"	Mod. P8-S		

NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	FERRAR PART No.	MEISSNER PART No.
55	Loop Ant.	4 Ω	1 Ω		14-1026
56	BC Ant. Coil	0 Ω	0 Ω		14-1044
57	BW Ant. Coil	1 Ω	3.5 Ω		14-1027
58	BC RF Coil	0 Ω	0 Ω		14-1045
59	BW RF Coil	0 Ω	0 Ω		
60	BW RF Pl.	2.5 Ω	3.5 Ω		
61	Load Coil	1 Ω	0 Ω		
62	BC Osc. Coil	18 Ω	18 Ω		16-6658
63	Input IF	18 Ω	18 Ω		16-6660
64	Output IF	18 Ω	18 Ω		

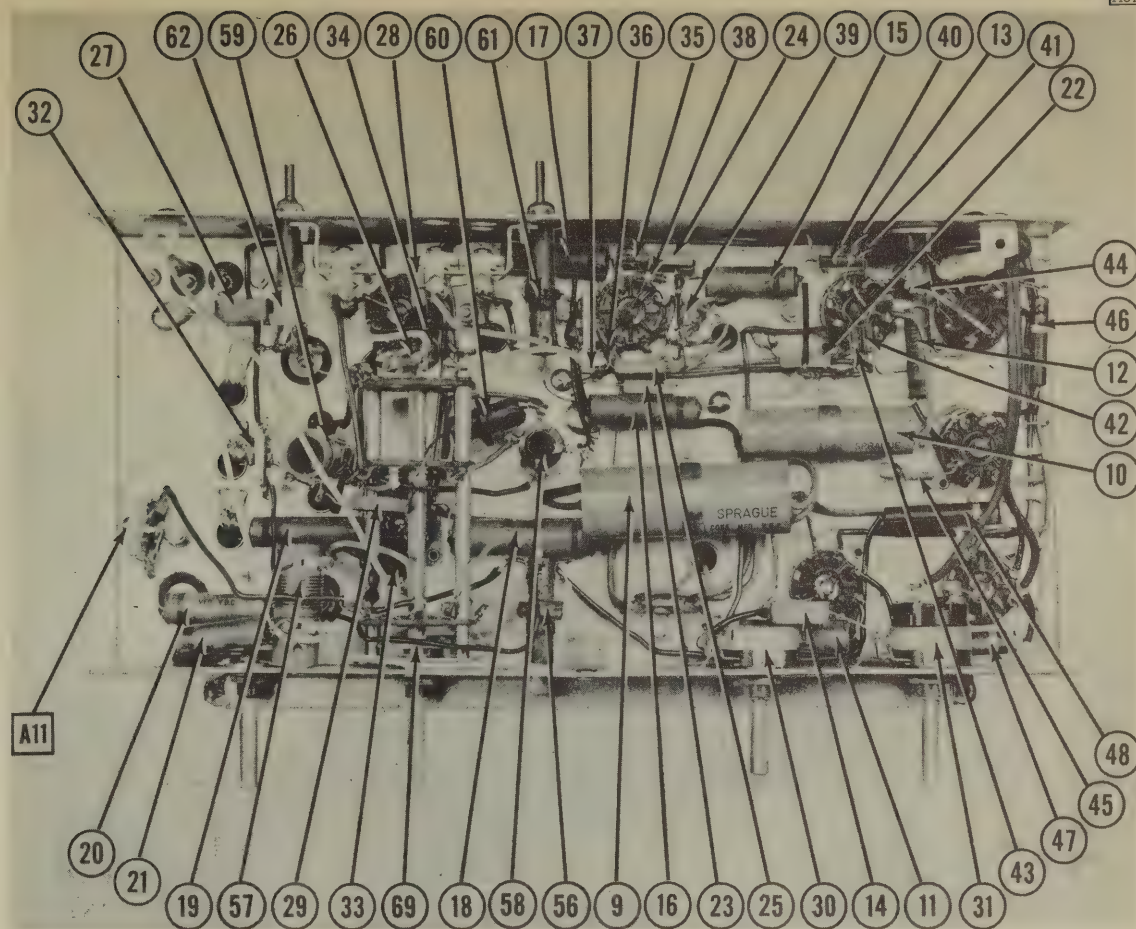
DIAL LIGHT

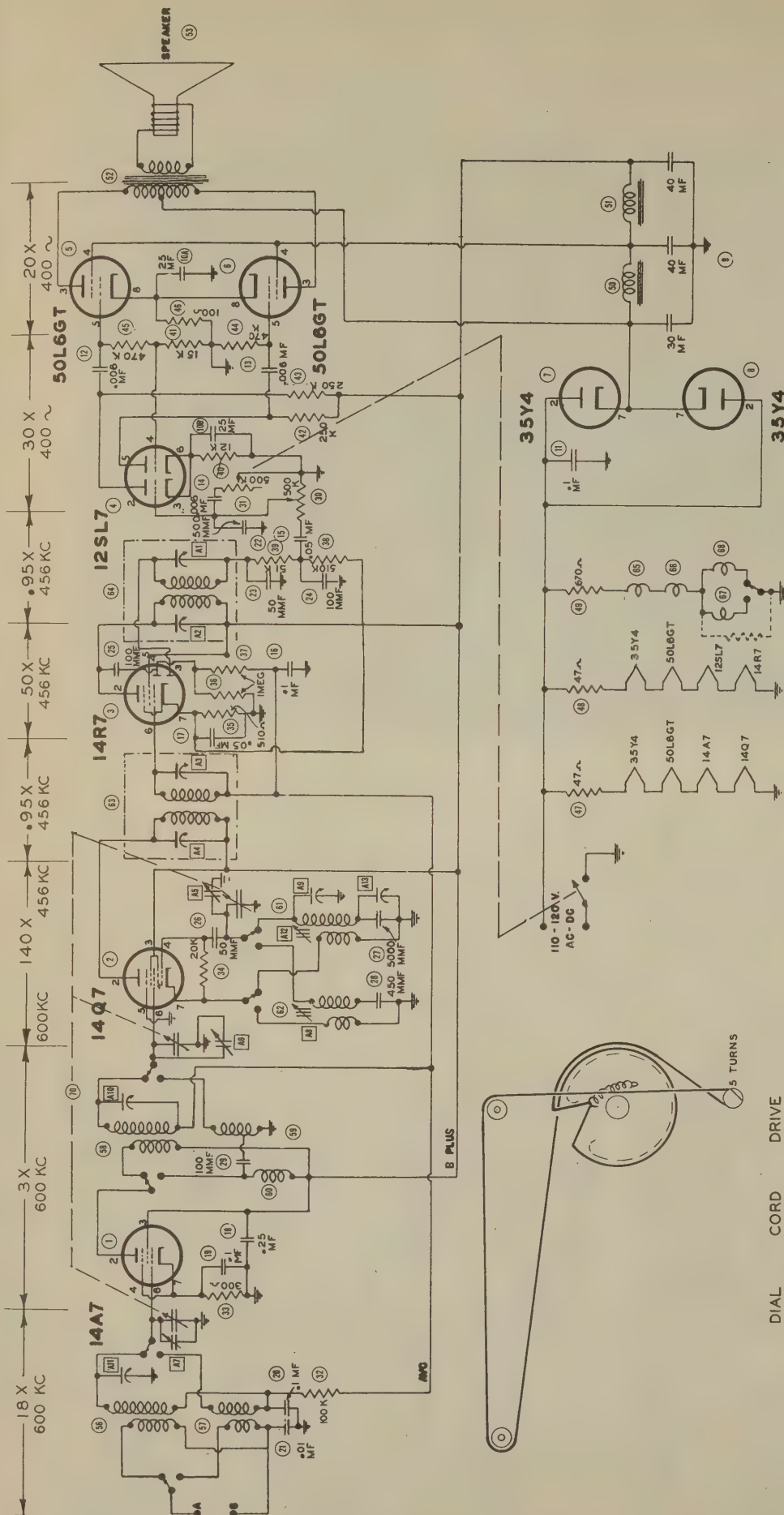
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	FERRAR PART No.	
65-68	Bayonet	6-8	0.15	Brown		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	FERRAR PART No.	NOTES
69	Bandswitch		
70	3-Gang Var. Cap.		(26-486 MUF) each section

CHASSIS—BOTTOM VIEW





IF=456KC

DIAL CORD DRIVE

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14A7	25VAC	15VDC	115VDC	35VDC	OV.	OV.	35VDC	13VAC
2	14Q7	13VAC	115VDC	115VDC	21VDC	OV.	11VDC	OV.	OV.
3	14R7	13VAC	115VDC	115VDC	21VDC	OV.	11VDC	OV.	OV.
4	12SL7	OV.	90VDC	115VDC	OV.	90VDC	115VDC	26VAC	13VAC
5	50L6GT	OV.	76VAC	125VDC	123VDC	OV.	OV.	26VAC	8.9VDC
6	50L6GT	OV.	76VAC	125VDC	123VDC	OV.	OV.	26VAC	8.9VDC
7	35Y4	111VAC	117VAC	OV.	103VAC	OV.	127VDC	76VAC	OV.
8	35Y4	111VAC	117VAC	OV.	103VAC	OV.	127VDC	76VAC	OV.

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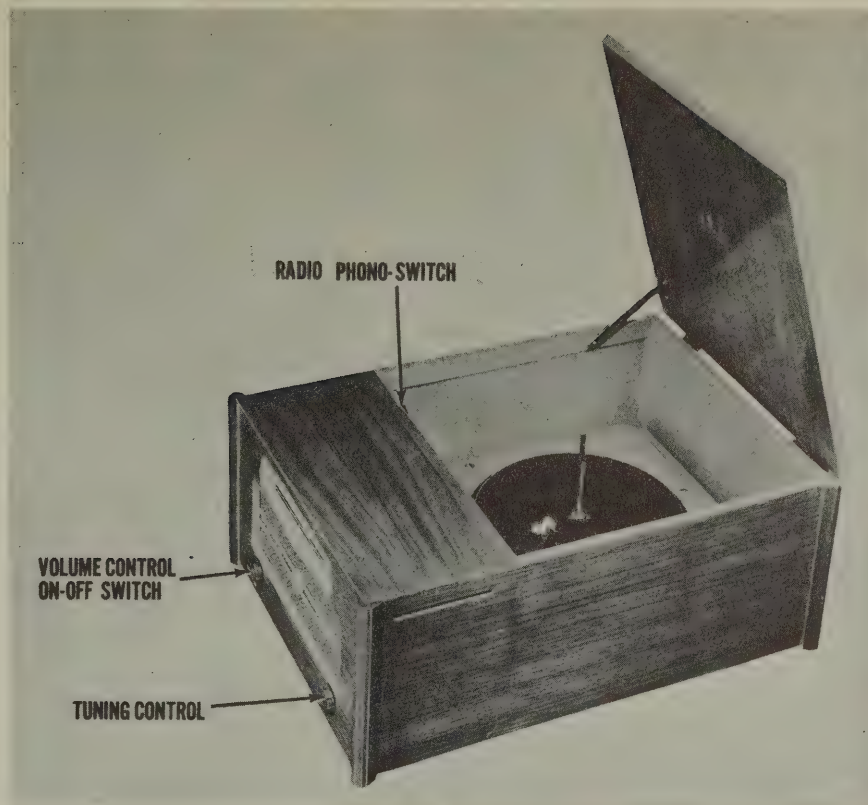
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14A7	21K	130K	130K	18K	0K	2 MEG.	280K	11K
2	14Q7	11K	130K	130K	18K	0K	2 MEG.	1K	0K
3	14R7	11K	130K	130K	18K	0K	2 MEG.	1K	0K
4	12SL7	450K	400K	10K	12K	10K	10K	21K	11K
5	50L6GT	0K	48K	130K	130K	425K	INF.	21K	90K
6	50L6GT	0K	48K	130K	130K	425K	INF.	21K	90K
7	35Y4	57K	80K	INF.	54K	0K	INF.	130K	48K
8	35Y4	57K	80K	INF.	54K	0K	INF.	130K	48K

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



HOFFMAN MODEL B-400

TRADE NAME Hoffman, Model B-400 MANUFACTURER Hoffman Radio Corp., 3761 S. Hill St., Los Angeles, Calif. TYPE SET AC Operated Phono-Radio Combination Superheterodyne with Loop Antenna TUBES (FIVE) Types, 12SA7 Converter, 12SG7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT/G Rectifier.						
POWER SUPPLY 110-120 Volts AC TUNING RANGE—BROADCAST 530-1650KC RATING .230 Amp. @ 117 Volts AC						
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MMFD	High side to ext. ant. lug. Low side to chassis.	1650KC	"	"	A5	Adjust for maximum output.
200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type control knobs.
2. Remove lock nut from radio-phono switch.
3. Remove phono-motor plug from chassis.
4. Remove four screws holding chassis mounting board. Remove chassis and mounting board.
5. Unsolder phono-pickup leads from radio-phono switch.
6. Remove three chassis mounting bolts. Remove chassis from chassis mounting board.

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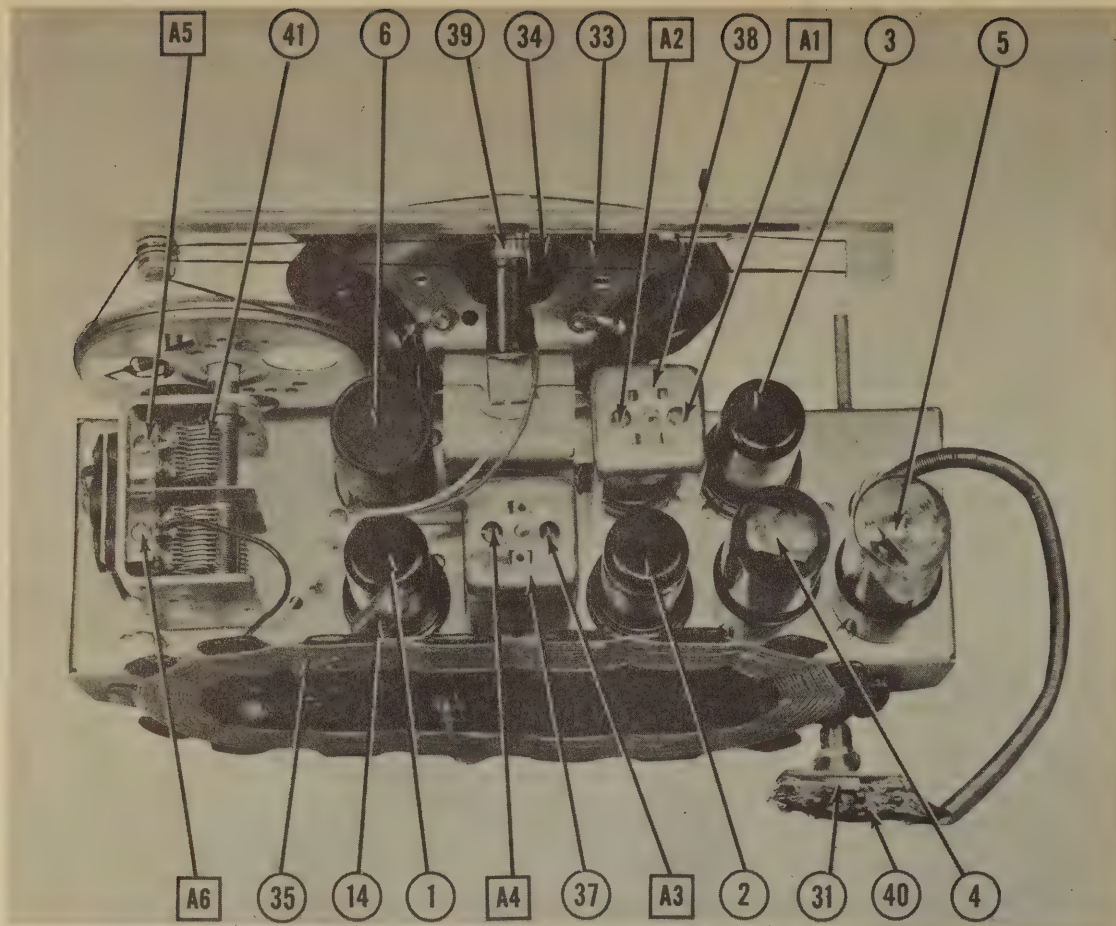
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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

HOFFMAN
MODEL B-400

CHASSIS—TOP VIEW



ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		HOFFMAN PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	8R	
2	1F Amp.	12SG7	12SG7	8BK	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT/G	35Z5GT/G	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		HOFFMAN PART No.	AEROVOX PART No.	CORNEILL-DUBILIER PART No.	MALLORY PART No.	
6A	50	4201	AF1010D	UP5315	FF214	■ Filter
7	150					
8	30					
9	.05	4101	484-.05	DT455	TP426	TC-15
10	.02	4108	484-.02	DT452	TP423	TC-2
11	.005	4106	684-.005	DT455	TP423	TC-12
12	.005	4102	684-.005	DT455	TP423	TC-25
13	.005	4102	684-.005	DT455	TP423	TC-15
14	.005	4102	684-.005	DT455	TP423	TC-25
15	.005	4102	684-.005	DT455	TP423	TC-15
16	.005	4102	684-.005	DT455	TP423	TC-25
17	.005	4102	684-.005	DT455	TP423	TC-15
18	.005	4102	684-.005	DT455	TP423	TC-25

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		HOFFMAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
19A	500KΩ	4802	MR48	D13-133	M-80-2	Volume Control
B	Start	Not Req.	Not Req.	A	Not Req.	Attach to 19A per instructions
C	Switch	Not Req.	M26	41	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		HOFFMAN PART No.	IRC PART No.	
20	22KΩ	4501	BTS-22K	Red-Red-Or. Oscillator Grid
21	2.2 Meg.	4502	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
22	10 Meg.	4505	BTS-10 Meg.	Br.-Blk.-Blue AVC Network-See Note
23	47KΩ	4504	BTS-47K	Yl.-Vl.-Or. Diode RF Filter
24	10 Meg.	4505	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
25	220KΩ	4500	BTS-220K	Red-Red-Yl. AF Plate Load
26	470KΩ	4506	BTS-470K	Yl.-Vl.-Yl. Output Grid
27	150Ω	4510	BW-150	Br.-Grn.-Br. Output Cathode
28	1800Ω	4552	ETA-1800	Br.-Gray-Red Filter
29	470KΩ	4506	BTS-470K	Yl.-Vl.-Yl. Line Isolation
30	47Ω	4508	BW-47	Yl.-Vl.-Blk. Surge Limiter
31	470KΩ	4506	BTS-470K	Yl.-Vl.-Yl. Series Phono

Note - Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.		HOFFMAN PART No.	STANCOR PART No.	THORDARN PART No.	
32A	3000Ω	3.8Ω	272Ω	1.5Ω	5117	A-3876*		*Add extra filter to reduce hum level.
B	1850Ω	3.8Ω	180Ω	.8Ω	5101	A-3865	T22945	Used in early models.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		HOFFMAN PART No.	JENSEN PART No.	
33	FIELD VC IMP. 3.8Ω CONE DIA. VC DIA. S-1/8" 1/2"	9023	ST-1071 Mod. PS-V	1 Drill and tap magnet frame.
34		NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

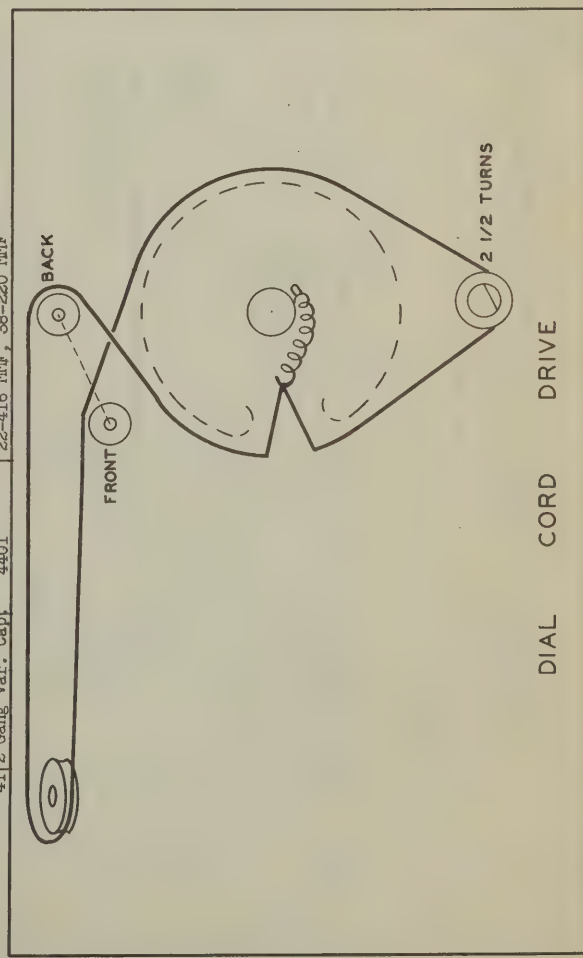
ITEM No.	USE	REPLACEMENT DATA		
		DC RES.	HOFFMAN PART No.	WEISSNER PART No.
35	Loop Ant.	PRI. SEC.	5255	
36	Osc. Coil	1.5Ω 6Ω 12.5Ω 12Ω	5208	14-1040
37	Input IF		5205	16-6658
38	Output IF		5206	16-6660

DIAL LIGHT

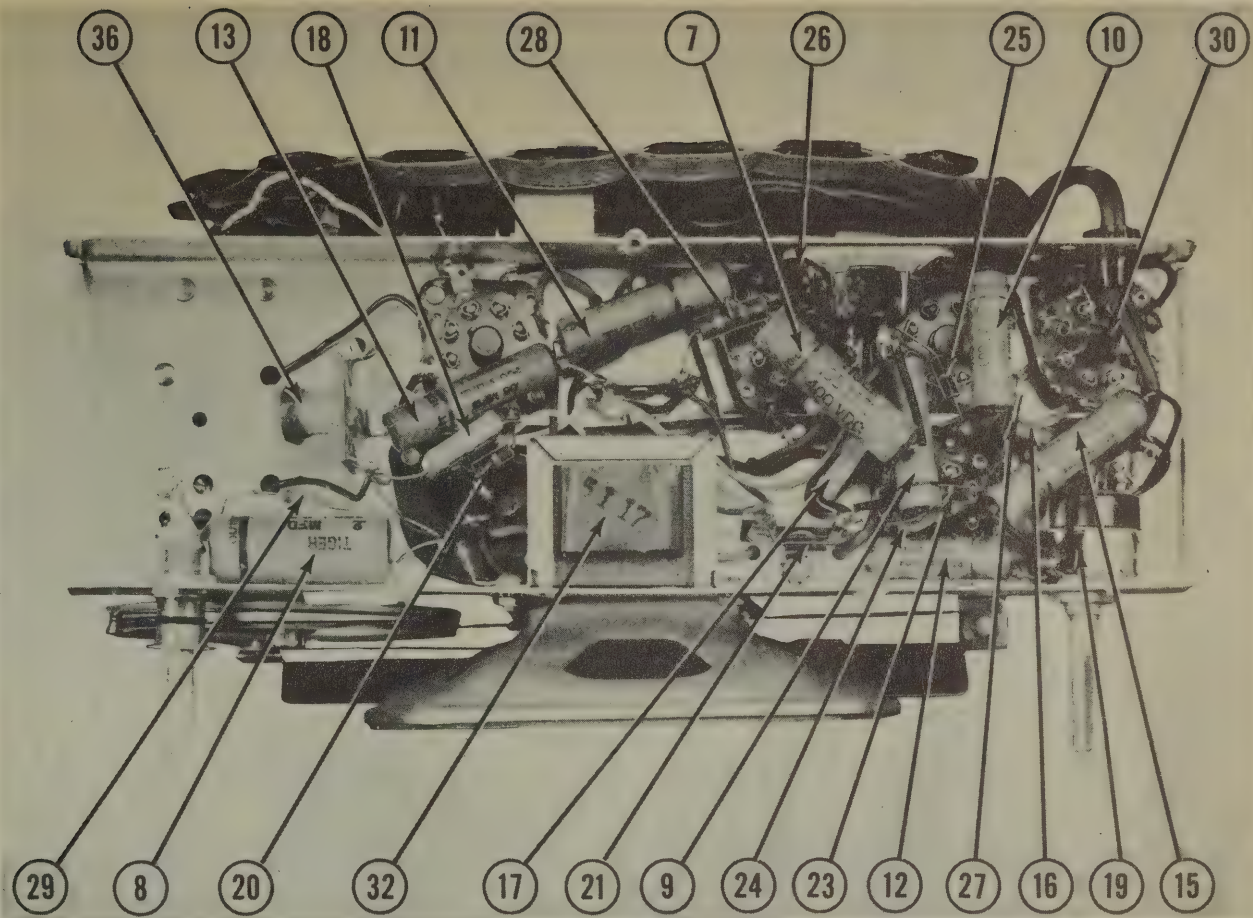
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					HOFFMAN PART No.		
39	Bayonet	6-8	0.15	Brown			Type 47

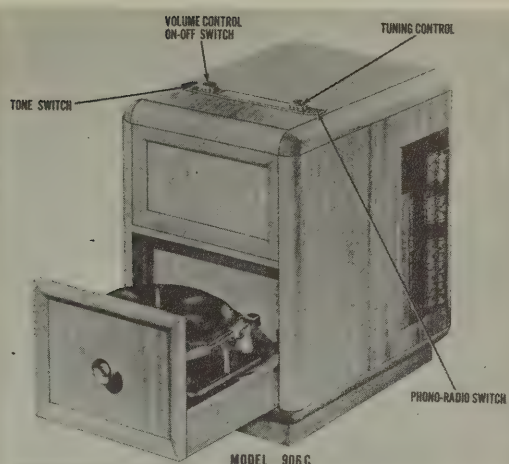
MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
40	Switch		Radio-Phono
41	2 Gang Var. Cap.	4401	22-416 MUF, 38-220 MUF



CHASSIS—BOTTOM VIEW





HOWARD MODEL 906

TRADE NAME Howard, Model 906 (Table Model), 906C (Chairside Model with Automatic Changer)
MANUFACTURER Howard Radio Co., 1735 Belmont Ave., Chicago 13, Ill.
TYPE SET AC Operated Superheterodyne (Model 906 with Phono Provisions-906C with Auto. Changer)
TUBES (SIX) Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7GT IF Amp., 6SQ7 Det.-AVC-AF, 6V6GT/G Power Output, 5Y3GT Rectifier.

POWER SUPPLY 110-120 Volts AC

TUNING RANGE—BROADCAST 535-1650KC

RATING .530 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. When aligning receiver connect loop to receiver through extended leads. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to Pin 8 (grid) of 6SA7. Low side to chassis.	455KC	Tuning cap. open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
.05 MFD	High side to ext. ant. lug. Low side to chassis.	"	Tuning cap. closed.	"	A5	Adjust for minimum output.
400Ω	"	1400KC	1400KC	"	A6	Adjust for maximum output.
400Ω	"	"	Tune for maximum output.	"	A7	" " " "

DISASSEMBLY INSTRUCTIONS (MODEL 906C)

Take knobs off volume control and tuning control by loosening set screws. Remove the wood screws that are located inside the record storage space at the top rear of cabinet. The entire top wood panel lifts out by pushing upward inside the storage space one inch, and then remove panel by lifting to the rear of the cabinet. After the panel is removed, it is easy to see the mounting bolts that hold the chassis.

TO REMOVE DRAWER

Pull the drawer out to its full extremity. Place your hands (one on each side) beneath the drawer about 3 inches from the back and feel along the track until you hit two little metal flaps that are the stops for the drawer. Lift these up with your index fingers and the drawer can then be pulled right out of the cabinet.

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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

HOWARD
MODEL 906, 906C

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		HOWARD PART No.	STANDARD REPLACEMENT	
1	RF Amp.	6SK7	6SK7	
2	Converter	6SA7	6SA7	
3	IF Amp.	6SK7GT	6SK7GT	
4	Det.-AVC-AF	6SQ7	6SQ7	
5	Power Output	6V6GT/G	6V6GT/G	
6	Rectifier	5Y3GT	5Y3GT	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		HOWARD PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	
7A	30 CAP.	CE-0009	AF44414A	UP9DJ53t	FP346	EL-330 Filter
7B	450 VOLT					
8	20					
9	25					
10	25					
11	.05		484-05	DP485	TP426	TC-15 Cath. Bypass
12	.006		484-002	DP406	TP406	TC-22 Line Bypass
13	.01		484-006	DP406	TP406	TC-26 Output Plate Bypass
14	.01		484-01	DP481	TP410	TC-11 Tone Compensation
15	.05		484-05	DP485	TP410	TC-11 Audio Coupling
16	.1		484-1	DP481	TP418	TC-15 AVC Filter
17	.15		484-15	DP485	TP418	TC-15 RF Bypass Pwr. Supp.
18	.15		484-15	DP485	TP426	TC-15 IF Cath. Bypass
19	.15		484-15	DP485	TP426	TC-15 Screen Bypass
20	300		1488-0003	5M5T3	M241	TC-15 RF Cath. Bypass
21	100		1488-0001	5M5T1	M235	TC-15 Audio Plate Bypass
22	500		1488-0001	5M5T1	M235	TC-15 Diode Filter
23	500		1488-0005	5M5T5	M245	TC-15 Osc. Grid Capacitor
24	300		1488-0003	5M5T3	M241	TC-15 RF Coupling

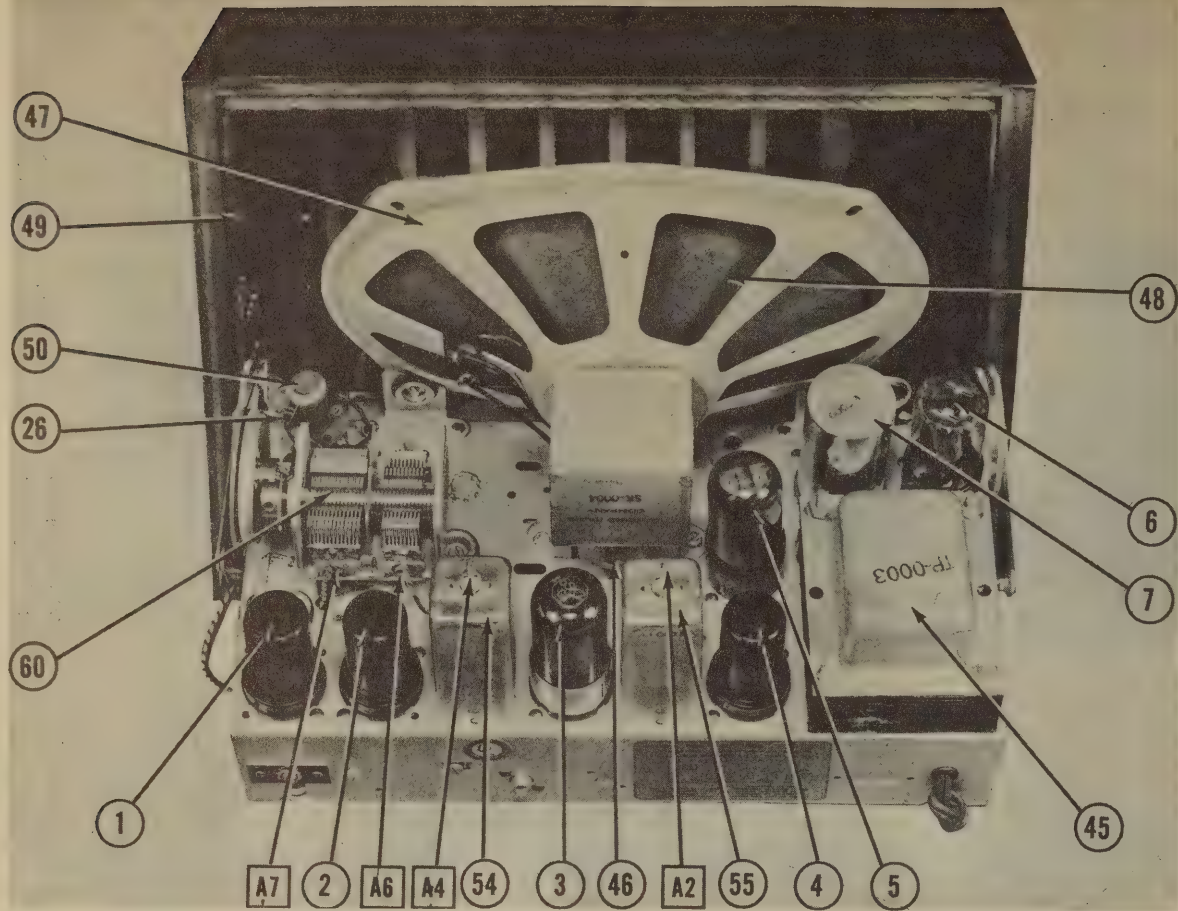
Do not use one 10MFD section.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		HOWARD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
25A	500K	(VCO005)	NR48	DL3-133	M-60-Z	Vol. Control
B	Shaft	Not Req.	Not Req.	A	Not Req.	Attach to 25A per Instructions
C	Switch	Not Req.	M26	41	SW-A	" " " " " "

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		HOWARD PART No.	IRC PART No.	IRC PART No.	
26	2200Ω		BTS-2200	BTS-2200	Red-Red-Red Series Ant.
27	470Ω		BTS-470	BTS-470	Yl.-Vl.-Br. RF Cathode
28	1 Meg.		BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
29	10KΩ		BTS-10K	BTS-10K	Br.-Blk.-Grn. RF Plate Load
30	1 Meg.		BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
31	22KΩ		BTS-22K	BTS-22K	Red-Red-Or. Oscillator Grid
32	470Ω		BTS-470	BTS-470	Yl.-Vl.-Br. IF Cathode
33	15KΩ		BTS-15K	BTS-15K	Br.-Grn.-Or. Screen Dropping
34	2.2 Meg.		BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
35	47KΩ		BTS-47K	BTS-47K	Yl.-Vl.-Or. Diode RF Filter
36	10 Meg.		BTS-10 Meg.	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
37	220KΩ		BTS-220K	BTS-220K	Red-Red-Yl. AF Plate Load
38	470KΩ		BTS-470K	BTS-470K	Yl.-Vl.-Yl. Output Grid
39	330Ω		BW-1-330	BW-1-330	Or.-Or.-Br. Output Cathode
40	10KΩ		BTS-10K	BTS-10K	Br.-Blk.-Or. Filter
41	2200Ω		BT-2-2200	BT-2-2200	Blue-Gray-Or. Tone Compensation
42	68KΩ		BTS-68K	BTS-68K	Red-Red-Red Filter
43	2Ω		BW-1-2.2	BW-1-2.2	Red-Blk.-Gold Series Pilot Light



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	TOTAL DIRECT CURRENT	INDUCTANCE (1000%)	HOWARD PART NO.	STANCOR PART NO.	
44	.026A	470Ω	LC0010	C-1708*	*Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC.	HOWARD PART No.	STANCOR PART No.	
45	117V AC @ .53A	600V CT 5.1V AC @ 2.0A	TP-0003	P-6120	T22R04

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	HOWARD PART No.	THORDARN PART No.	
46	9600Ω	3.62 340Ω	TO-0006	A-3879†	†Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD PH	VC DIA.	HOWARD PART No.	JENSEN PART No.	
47	8-1/4" x 9-1/8"	3.52	SK-0004		
48			NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	HOWARD PART No.	WEISSNER PART No.
49A	Loop Ant.	.5Ω		AN-0005	
50	Loop Ant. Load			AN-0006	
51	RF Coil	2.32		LA-0007	
52	Wave Trap	16Ω		LR-0002	
53	Osc. Coil	72Ω		LO-0001	
54	Input IF	14Ω		LI-0014	
55	Output IF	23Ω		LI-0015	

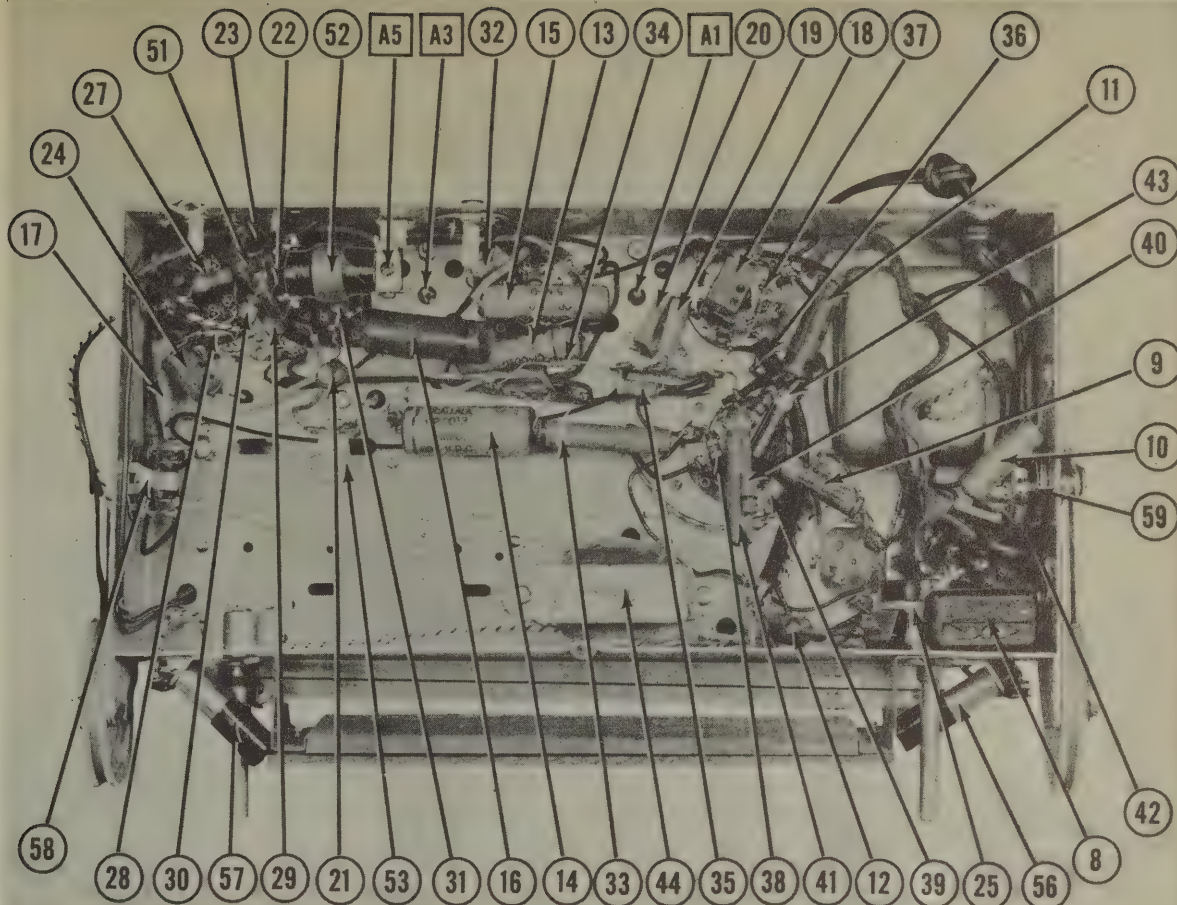
DIAL LIGHT

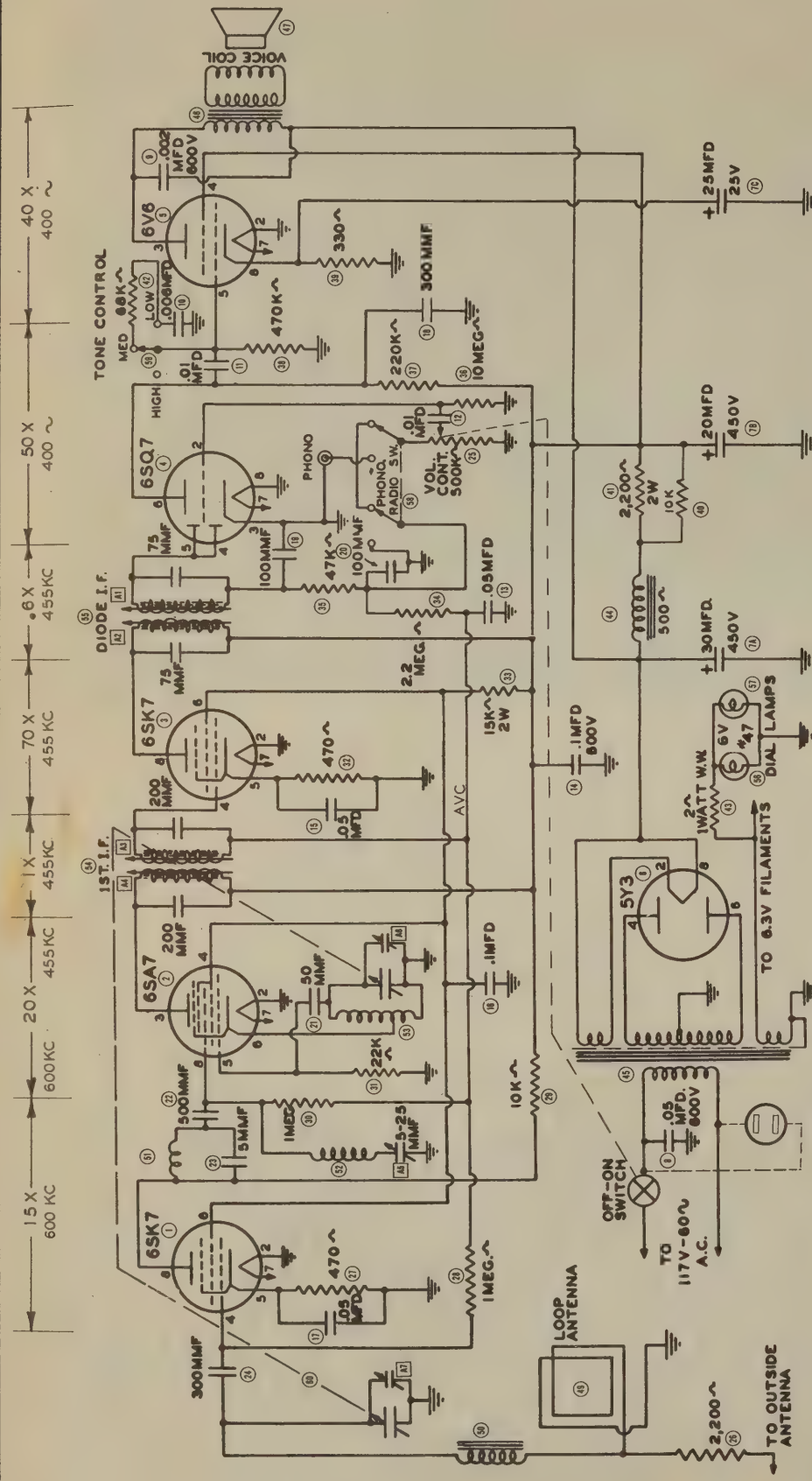
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				HOWARD PART No.	BEAD COLOR	
56	Bayonet	6-8	0.15		Brown	
57		6-8	0.15			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	HOWARD PART No.	NOTES
58	Radio-Phono Sw.	SW-0009	DPTT
59	Tone Switch	SW-0010	3 Position
60	2 gang Var. Cap	AC-0004	28-476 MTF, 32-194 MTF

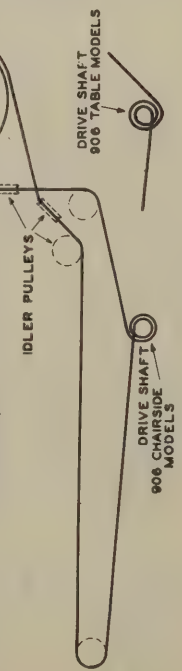
CHASSIS—BOTTOM VIEW





IF=455KC

DIAGRAM SHOWING THE CORRECT STRINGING OF THE DIAL CORD ON 906 MODELS.



VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
2	6SA7	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
3	6SK7GT	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
4	6SQ7	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
5	6V6GT/G	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
6	5Y3GT	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
2	6SA7	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
3	6SK7GT	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
4	6SQ7	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
5	6V6GT/G	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
6	5Y3GT	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE R+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



JEFFERSON-TRAVIS MODEL MR-3

TRADE NAME	Jefferson-Travis, Model MR-3
MANUFACTURER	Jefferson-Travis, Inc., 380 Second Ave., New York City, N.Y.
TYPE SET	Three Power Portable Superheterodyne Receiver-Self Contained Loop Antenna
TUBES (FIVE)	Types, 1LA6 Converter, 1LN5 1st IF Amp., 1LN5 2nd IF Amp., 1LH4 Det.-AVC-AF, 3LF4 Power Output.
RATING	.240 Amp. @ 117 Volts or 73MA @ 8.9 Volts DC & 14MA @ 89 Volts DC
POWER SUPPLY	110-120 Volts AC-DC or 9 Volts "A" Battery & 90 Volts "B" Battery
TUNING RANGE—BROADCAST	540-1600KC
	SHORT WAVE 1600-4800KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer at end of BC dial line at low freq. end of dial. After adjustment of A6 replace chassis in cabinet, batteries in battery compartment. Slide right end of chassis out until the trimmers are accessible for alignment of RF section. Use battery power whenever available. If AC power is used without isolation transformer connect a capacitor in series with low side of signal generator and B-. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to front stator of tuning cap. Low side to B-.	455KC	BC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4, A5,A6.	Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001MFD to reduce hum modulation.
	Loop	1600KC	"	1600KC	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
	"	1400KC	"	Tune for maximum output.	"	A8	"
	"	600KC	"	"	"	A9	Rock tuning cap. and adjust for maximum output. Recheck A7,A8.
	"	4.6MC	SW	Tuning cap. fully open.	"	A10	Adjust for maximum output
	"	3.6MC	"	Tune for maximum output.	"	A11	Adjust for satisfactory sensitivity over entire upper portion of band.
	"	1.75MC	"	"	"	A12	Rock tuning cap. and adjust for maximum output. Recheck A10 & A11.

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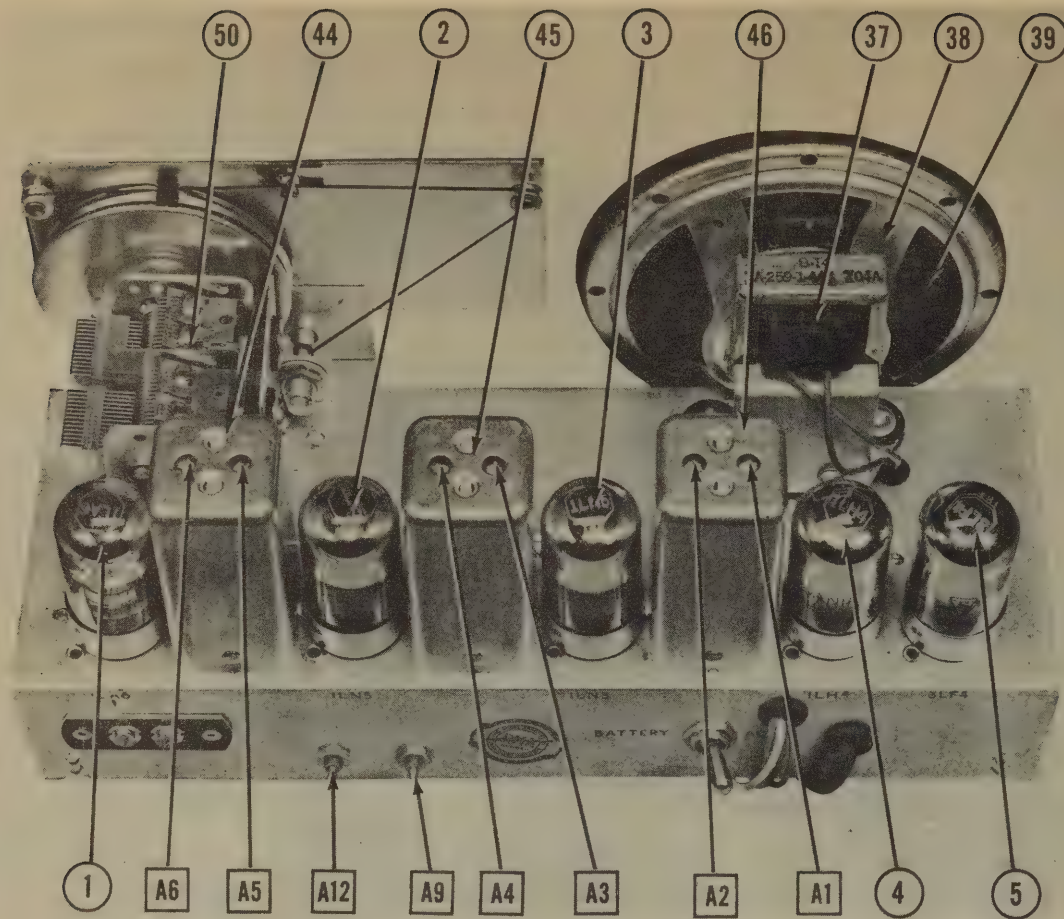
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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

JEFFERSON-TRAVIS
MODEL MR-3

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		JEFFERSON-TRAVIS PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	
1	50	PRSA150-50	EZ5515	2N521	M-2x50-150	TA-505	Filter - Green
2	50	PR825-100	BRH251	TC2501	M-100-25	UHC-102	Filament Bypass
3	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
4	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
5	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
6	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
7	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
8	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
9	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
10	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
11	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
12	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
13	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
14	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
15	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
16	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
17	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
18	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
19	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
20	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
21	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
22	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
23	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
24	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
25	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
26	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
27	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
28	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
29	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
30	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
31	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
32	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
33	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
34	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
35	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
36	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
37	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
38	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
39	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
40	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
41	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
42	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
43	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
44	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
45	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
46	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
47	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
48	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
49	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter
50	100	484-05	TP426	TP426	S-4-05	TC-15	Line Filter

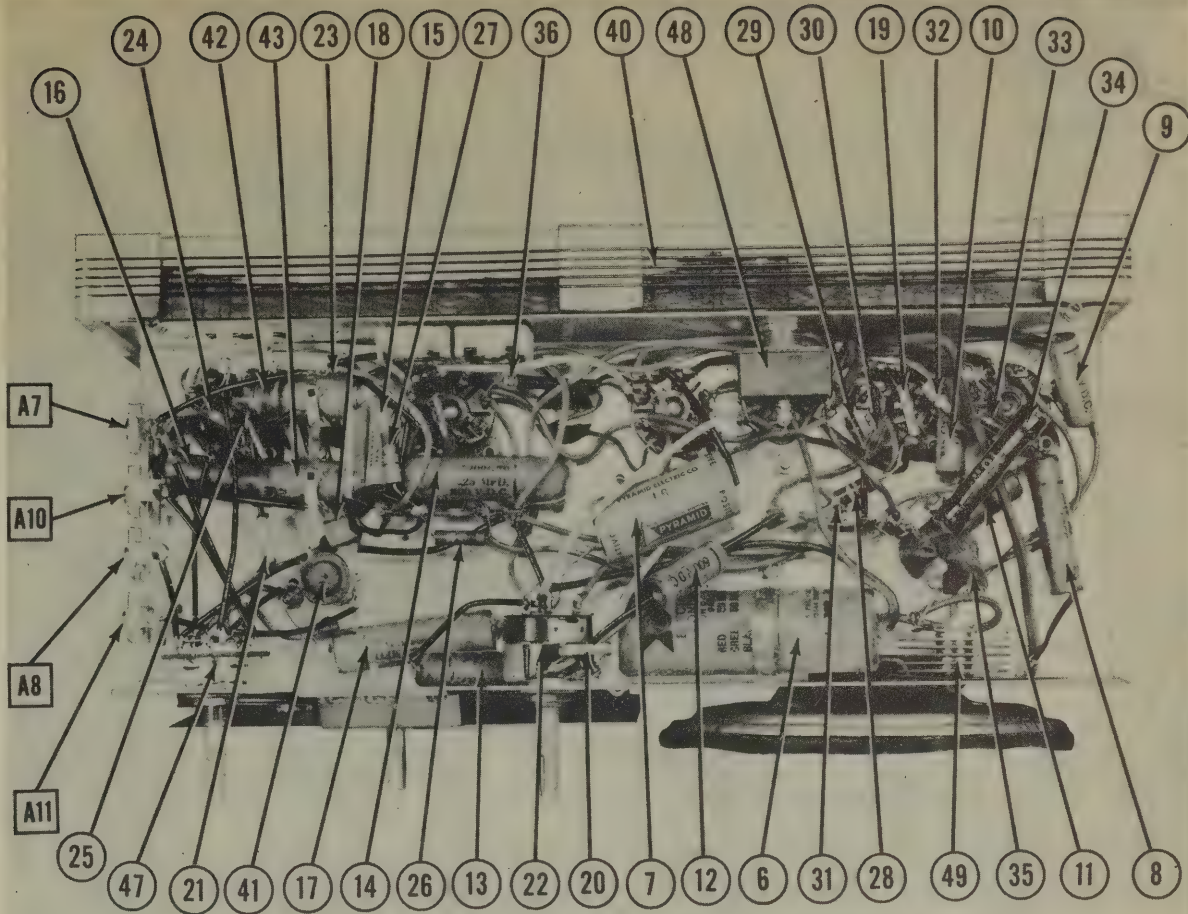
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		JEFFERSON-TRAVIS PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
1	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
2	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
3	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
4	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
5	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
6	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
7	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
8	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
9	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
10	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
11	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
12	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
13	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
14	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
15	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
16	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
17	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
18	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
19	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
20	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
21	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
22	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
23	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
24	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
25	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
26	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
27	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
28	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
29	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
30	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
31	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
32	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
33	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
34	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
35	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
36	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
37	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
38	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
39	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
40	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
41	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
42	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
43	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
44	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
45	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
46	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
47	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
48	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
49	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control
50	1 Meg. 1	MS53	Not Req.	DL3-137	M-63-Z	Volume Control

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		JEFFERSON-TRAVIS PART No.	MALLORY PART No.	IRC PART No.	
1	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	Red-Red-Grm. AVC Network
2	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	Br.-Blk.-Vl. Oscillator Grid
3	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	Vl.-Vl.-Or. Converter Screen Dropping
4	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	Red-Blk.-Grn. AVC Network
5	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	Vl.-Vl.-Vl. If Grid
6	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	Gray-Red-Or. Diode RF Filter
7	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	Vl.-Vl.-Grn. AF Grid
8	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	Br.-Blk.-Grn. AF Plate Load
9	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	Br.-Blk.-Grn. AF Plate Decoupling
10	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	Vl.-Vl.-Vl. Output Grid
11	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	Red-Yl.-Br. Filament String
12	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	Filter
13	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	Vl.-Vl.-Or. IF Plate Dropping
14	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
15	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
16	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
17	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
18	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
19	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
20	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
21	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
22	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
23	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
24	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
25	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
26	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
27	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
28	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
29	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
30	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
31	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
32	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
33	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
34	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
35	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
36	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
37	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
38	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
39	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
40	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
41	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
42	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
43	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
44	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
45	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
46	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
47	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
48	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
49	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	
50	2.2 Meg.	BTS-100K	BTS-100K	BTS-100K	

CHASSIS—BOTTOM VIEW



JEFFERSON-TRAVIS
MODEL MR-3

PARTS LIST AND DESCRIPTIONS (Continued)
TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	JEFFERSON-TRAVIS PART No.	THORDAR'N PART No.	
	PRI. SEC.	PRI. SEC.			
37	7800Ω 4Ω	350Ω	A-3878*	T22847*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

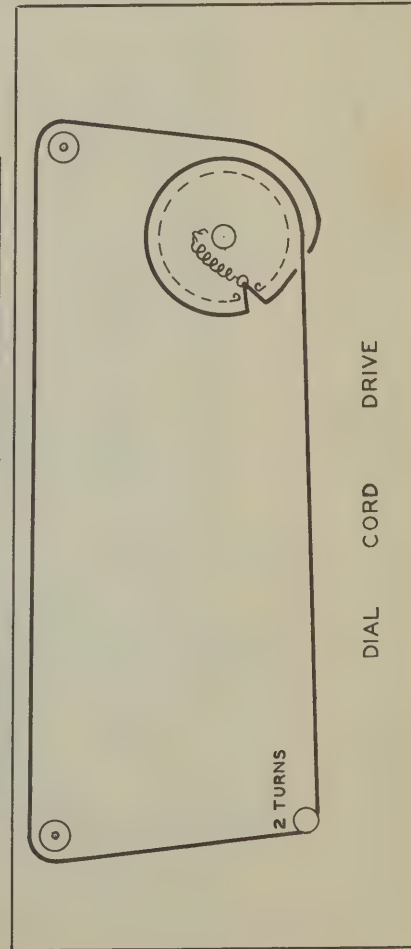
ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		JEFFERSON-TRAVIS PART No.	JENSEN PART No.	
38	FIELD VC IMP. 4Ω	ST-10ST Mod. PS-X		*Fabricate new mounting bracket.
39	CONE DIA. VC DIA. 4-3/4" 1/2"	NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT.		

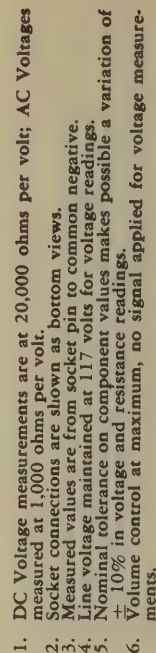
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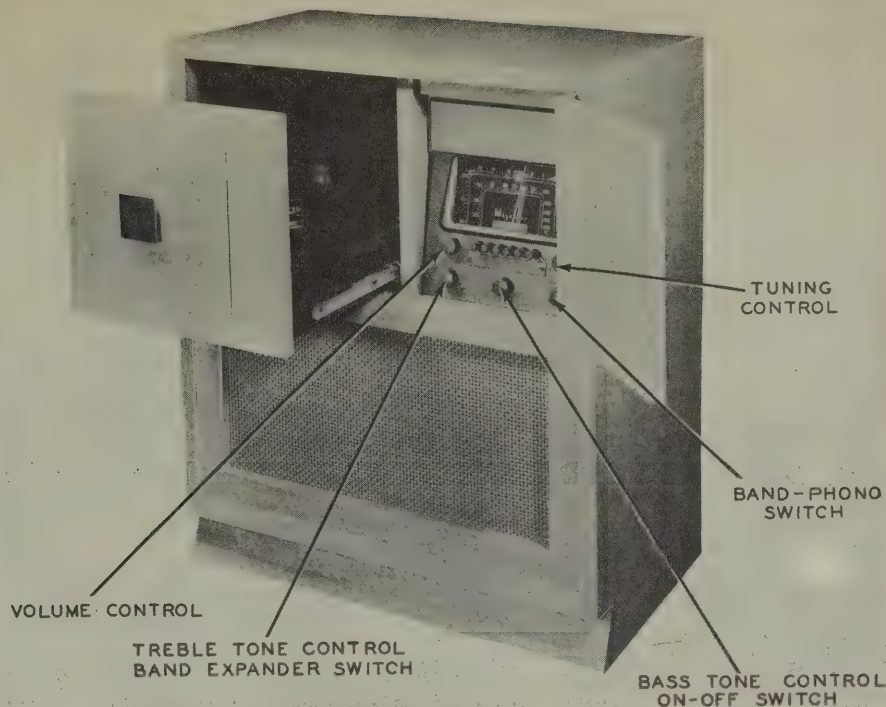
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	JEFFERSON-TRAVIS PART No.	MEISSNER PART No.
40	Loop Ant.		.2Ω		
41	Loop Load		2Ω		
42	BC Osc.		3Ω		14-1040
43	SW " Coil		1Ω		14-1043
44	Input IF	17Ω	18Ω		16-8658
45	Inter. IF	17Ω	17Ω		16-8659
46	Output IF	20Ω	20Ω		16-8660

MISCELLANEOUS

ITEM No.	PART NAME	JEFFERSON-TRAVIS PART No.	NOTES
47	Bandswitch		AC-DC-Batt. Selector Selenium Rectifier 13-483 MTF (each section) (2) Eveready #746 (2) Eveready #482
48	Charge-Over Sw.		
49	Rectifier		
50	250μg var. Cap.		
	#A Batteries		
	#B Batteries		







MAGNAVOX MODEL 154B MODERN SYMPHONY

TRADE NAME	Magnavox, Model 154B Modern Symphony (Chassis Models CR-198A,-B,-C)						
MANUFACTURER	Magnavox Co., 2131 Bueter Rd., Fort Wayne, Indiana						
TYPE SET	AC Operated Phono-Radio Combination Superheterodyne-Self Contained Loop Antenna						
TUBES (TEN)	Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6J5GT 2nd Det.-AVC, 6U5/6G5 Tuning Eye, 6J5 1st Audio, 6SN7GT 2nd AF-Phase Inv., (2) 6L6GA Power Output, 5U4G Rectifier.						
POWER SUPPLY	110-120 Volts AC			RATING	1.28 Amp. @ 117 Volts AC		
TUNING RANGE—BROADCAST	525-1630KC			SHORT WAVE	4.95-18.4MC		
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
After receiver is mounted in cabinet turn selectivity switch to "sharp", change link on ant. terminal board to loop position and tune in weak station near 1400KC. Adjust A13 for maximum output. To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Selectivity switch should be in "sharp position" for all alignment steps with exception of 10KC filter adjustment. (Last step). Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for a adjusting.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
250MMF.	High side to Pin 5 (osc. grid) of 6SA7. Low side to chassis.	455KC	BC	Low freq. end of dial.	Across voice coil	A1,A2,A3,A4.	Adjust for maximum output
250MMF.	High side to ant. terminal. Low side to chassis.	600KC	"	600KC	"	A5	Set link on ant. terminal board for ant. operation. Rock tuning capacitor and adjust for maximum output
250MMF.	"	1400KC	"	1400KC	"	A6	Adjust for maximum output
250MMF.	"	"	"	Tune for maximum output.	"	A7,A8	Adjust for maximum output Repeat last three steps.
400Ω	"	15MC	SW	15MC	"	A9	Adjust for maximum output If two peaks are obtained use the one with maximum capacity.
400Ω	"	"	"	Tune for maximum output.	"	A10,A11	Rock tuning cap. and adjust for maximum output.
	High side to phono input socket. Low side to chassis.	10000 CPS (Audio)	Phono	High freq. end of dial.	"	A12	Adjust for minimum output Selectivity switch should be in full range position

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MAGNAVOX PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	2nd Det.-AVC	6J5GT	6J5GT	6Q	
5	Tuning Eye	6U5/6G5	6U5/6G5	6R	
6	1st Audio	6J5	6J5	6Q	
7	2nd AF Phase Inv	6SN7GT	6SN7GT	88D	
8	Power Output	6L6GA	6L6GA	7AC	
9	Power Output	6L6GA	6L6GA	7AC	
10	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		MAGNAVOX PART No.	AEROVOX PART No.	CORNEIL DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	
11A	30	27002362	4P6J	UP6CJ47*	FP390*	DY-2X20-450	EL-344*
12A	10	27002366	FRS450/10	UP4CJ41	FP332†	DY-10-450/25	EL-202†
13A	20	27002366	AF22J4A	UP4CJ41	FP332†	DY-10-450/25	EL-202†
14	20	27002762	BR202A	TP26	TC26	M-25-25	TA-25
15	.02	27002963	684-02	DT682	TP412	S-6-02	TC-12
16	.02	27002963	684-02	DT682	TP412	S-6-02	TC-12
17	.02	27002963	684-02	DT682	TP412	S-6-02	TC-12
18	.01	27002963	684-01	DT681	TP410	S-6-01	TC-11
19	.01	27002963	684-01	DT681	TP410	S-6-01	TC-11
20	.03	27002963	484-03	DT483	TP424	S-4-03	TC-13
21	.1	27002963	484-01	DT481	TP428	S-4-01	TC-11
22	.01	27002963	684-01	DT681	TP421	S-4-01	TC-11
23	.01	27002963	684-01	DT681	TP421	S-4-01	TC-11
24	.01	27002963	684-01	DT681	TP421	S-4-01	TC-11
25	.01	27002963	684-01	DT681	TP421	S-4-01	TC-11
26	.05	27002963	484-05	DT485	TP426	S-4-05	TC-15
27	.05	27002963	484-05	DT485	TP426	S-4-05	TC-15
28	.05	27002963	484-05	DT485	TP426	S-4-05	TC-15
29	.05	27002963	484-05	DT485	TP426	S-4-05	TC-15
30	.05	27002963	484-05	DT485	TP426	S-4-05	TC-15
31	.05	27002963	484-05	DT485	TP426	S-4-05	TC-15
32	.01	27002963	684-01	DT681	TP421	S-4-01	TC-11
33	1000	27002963	1468-001	1468D1	MC255	M-5-21	1FM-21
34	1800	27002963	1468-001	1468D1	MC255	M-5-21	1FM-21
35	330	27002963	1468-0003	5W5T3	MC241	M-5-333	1FM-33
36	220	27002963	1468-0002	5W5T2	MC237	M-5-322	1FM-32
37	100	27002963	1468-0001	5W5T1	MC235	M-5-31	1FM-31
38	680	27002963	1468-0001	5W5T1	MC235	M-5-31	1FM-31
39	220	27002963	1468-0002	5W5T2	MC237	M-5-322	1FM-32
40	100	27002963	1468-0001	5W5T1	MC235	M-5-31	1FM-31
41	50	27002963	1468-0005	5W5Q5	MC225	M-5-45	1FM-45
42	4700	27002963	250086332	250086332			
43	4700	27002963	25016165	25016165			
44	4700	27002963	25016165	25016165			
45	490	27002963	250085032	250085032			

†Do not use one section.

*Parallel sections for desired capacity.

†Chassis CR-198A uses 680MFD in this application.

*Some models use .005 MFD in this application.

†May be .02 or .015 in some models.

*Chassis model CR-198A uses 330MFD in this application.

ITEM No.	RATING	REPLACEMENT DATA		CLAROSTAT PART No.	INSTALLATION NOTES
		MAGNAVOX PART No.	MALLORY PART No.		
46A	1 Meg.	220044G23	MR53	D13-137	Volume Control
47	1 Meg.	220071G2	Not Req.	A	Attach to 46A per instructions
48A	150K Ω	220045G6	MR42	D13-128	Treble Control
49	B Shunt	Not Req.	Not Req.	A	Base Control
50	Switch	Not Req.	Not Req.	SW-A	Attach to 48A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		RESISTANCE	WATTS	
49	1 Meg.	230084098	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
50	470 Ω	230084011	BTS-470	Yl.-Vi.-Br. RF Cathode
51	1 Meg.	230084098	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
52	10K Ω	230084019	BTS-10K	Br.-Blk.-Grn. RF Coil Shunt BC
53	1 Meg.	230084098	BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
54	680K Ω	230084030	BTS-680K	Blue-Gray-Yl. AF Grid-See Note 1
55	47K Ω	230084023	BTS-47K	Yl.-Vi.-Or. Tone Compensation
56	150 Ω	23008408	BM-150	Br.-Grn.-Br. Converter Cathode
57	22K Ω	230084021	BTS-22K	Red-Red-Or. Oscillator Cathode
58	2200 Ω	230084015	BTS-2200	Red-Red-Red IF Cathode
59	470 Ω	230084011	BTS-470	Yl.-Vi.-Br. IF Cathode
60	15K Ω	230086G20	BT-2-15K	Br.-Grn.-Or. Screen Bleeder
61	10K Ω	240035G2	AB-10K	Red-Red-Or. Diode RF Filter
62	22K Ω	230084021	BTS-22K	Br.-Grn.-Yl. Diode Load
63	150K Ω	230084026	BTS-150K	Br.-Blk.-Grn. AVC Network
64	1 Meg.	230084098	BTS-1 Meg.	Yl.-Vi.-Red AF Cathode
65	4700 Ω	230084017	BTS-4700	Br.-Grn.-Yl. AF Plate Load
66	150K Ω	230084026	BTS-150K	Yl.-Vi.-Red Filter-See Note 2
67	4700 Ω	230084017	BTS-4700	Grn.-Blue-Yl. Tuning Eye Plate Load
68	1000 Ω	230084095	BT-2-1000	Br.-Blk.-Red Parasitic Suppressor
69	560K Ω	230084037	BM-100	Gray-Red-Or. Tone Compensation
70	82K Ω	230084085	BTS-82K	Yl.-Vi.-Or. AF Driver Grid
72	47K Ω	230084023	BTS-47K	Br.-Grn.-Red AF Driver Cathode
73	1500 Ω	230084014	BTS-1500	Br.-Blk.-Yl. AF Driver Plate Load
74	100K Ω	230084025	BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load
75	100K Ω	230084025	BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load
76	15K Ω	230084017	BTS-15K	Br.-Grn.-Or. Phase Inverter Grid
77	4700 Ω	230084017	BTS-4700	Yl.-Vi.-Red Decoupling
78	220K Ω	230084015	BTS-220K	Red-Red-Yl. Output Grid
79	270K Ω	230084091	BTS-270K	Red-Yl.-Yl. Output Grid
80	1 Meg.	230084098	BTS-1 Meg.	Br.-Blk.-Grn. Tone Compensation
81	15K Ω	230086G20	BT-15K	Br.-Grn.-Or. Tone Compensation
82	125K Ω	240021G11	ABA-15K	Output Cathode

Note 1 - Not used in chassis CR198A. Some models use 1 Meg. and 2.2 Meg. in parallel.

Note 2 - Some models use 22K Ω in this application. Replacement same as #57.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA	
	IMPEDANCE	SEC. 1	SEC. 2	MAGNAVOX PART No.	THORADSON PART No.
83	117V AC 740V CT @ 1.28A @ 1.70A	5.0V AC @ 2.6A	6.3V AC @ 4.5A	300035G1	P-6314

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA	
	IMPEDANCE	DC RES.	SEC.	MAGNAVOX PART No.	THORADSON PART No.
84	11000 Ω 2.6 Ω CT	200 Ω CT	.45 Ω	Part of 582847	T225641†

†TDrill new mounting holes.
**Solder terminal strip to frame of replacement unit.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		MAGNAVOX PART No.	JENSEN PART No.	
85	FIELD RES. VC IMP. 2600	582847		
86	CONE DIA. VC DIA. 1 1/4"			NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.
87	FIELD RES. VC IMP. 2700	582915		
88	CONE DIA. VC DIA. 1 1/4"			NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	MAGNAVOX PART No.	MEISSNER PART No.
89	Loop Ant.		1.5Ω		
90	SW Ant. Coil	24Ω	4Ω	360273G1	
91A	BC Ant. Coil	5Ω	1.5Ω		91A & 91B wound on same form
91B	SW Ant. Coil	24Ω	4Ω	360274G1	
92A	BC RF Coil	.5Ω	1.5Ω		92A & 92B wound on same form
92B	SW RF Coil	.5Ω	4.5Ω	360275G1	
93A	BC Osc. Coil		.1Ω		93A & 93B wound on same form
93B	SW Osc. Coil		500Ω	360278G1	
94	10KC Filter Coil	72	7.5Ω	360024G1	
95	Input IF	72	7.5Ω	360025G1	16-6660
96	Output IF				

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	MAGNAVOX PART No.	
97	Bayonet	6-8	.250	Blue		Type 44
98		6-8	.250			

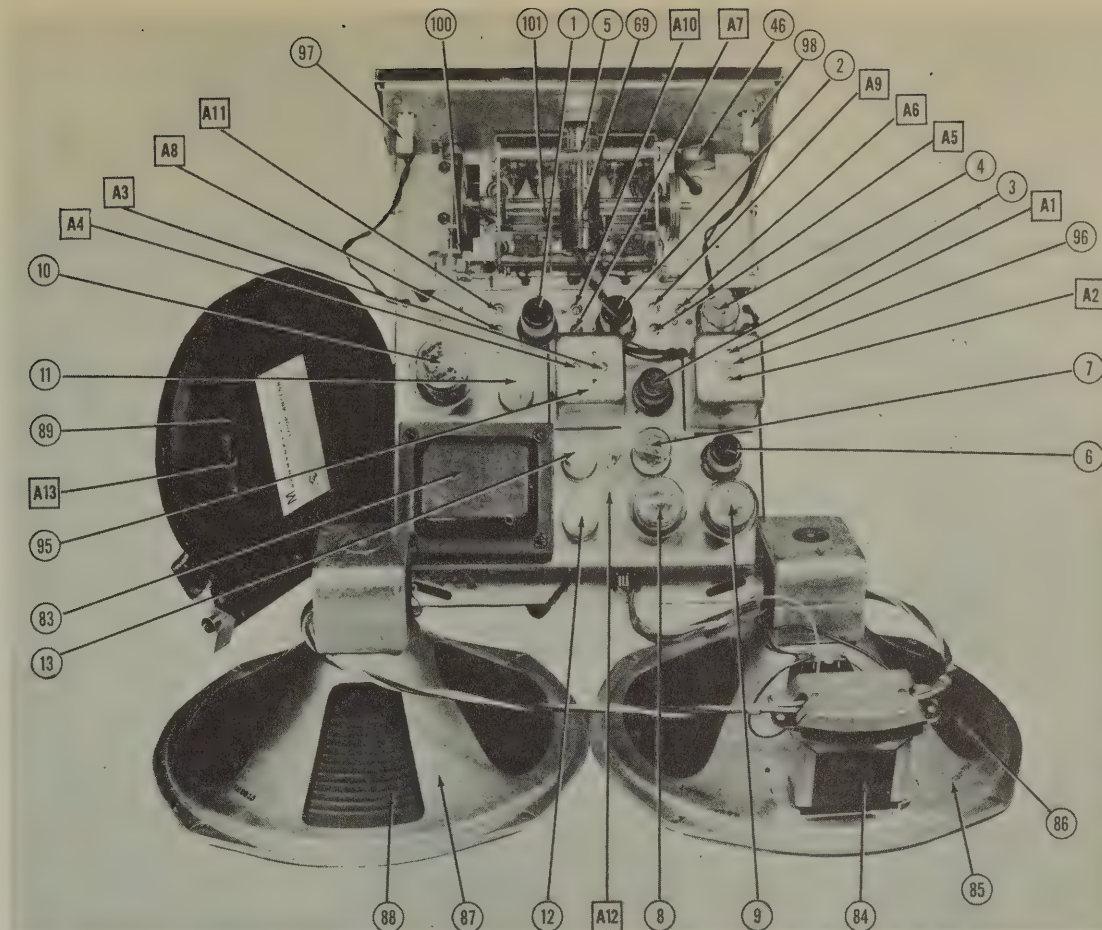
MISCELLANEOUS

ITEM No.	PART NAME	MAGNAVOX PART No.	NOTES
99	Bandswitch	160172G1	
100	Muting Switch	260071G1	
101	3 Gang Var. Cap.	150291G1	(10-553MUF) each section
A5	Dial Glass Assy		{BC Osc. Padder
A9	Trimmer Strip	260021G1	{SW Osc. Trimmer
A6	Trimmer Cap.	260067G3	{BC Osc. Trimmer
A7	Trimmer Strip	260021G1	{BC RF Adj.
A10	Trimmer Strip	260021G1	{SW RF Adj.
A8	Trimmer Strip	260021G1	{BC Ant. Adj.
A11	Trimmer Strip	260021G1	{SW Ant. Adj.
A12	Trimmer Cap.	250008G1	10KC Audio Filter Adj.

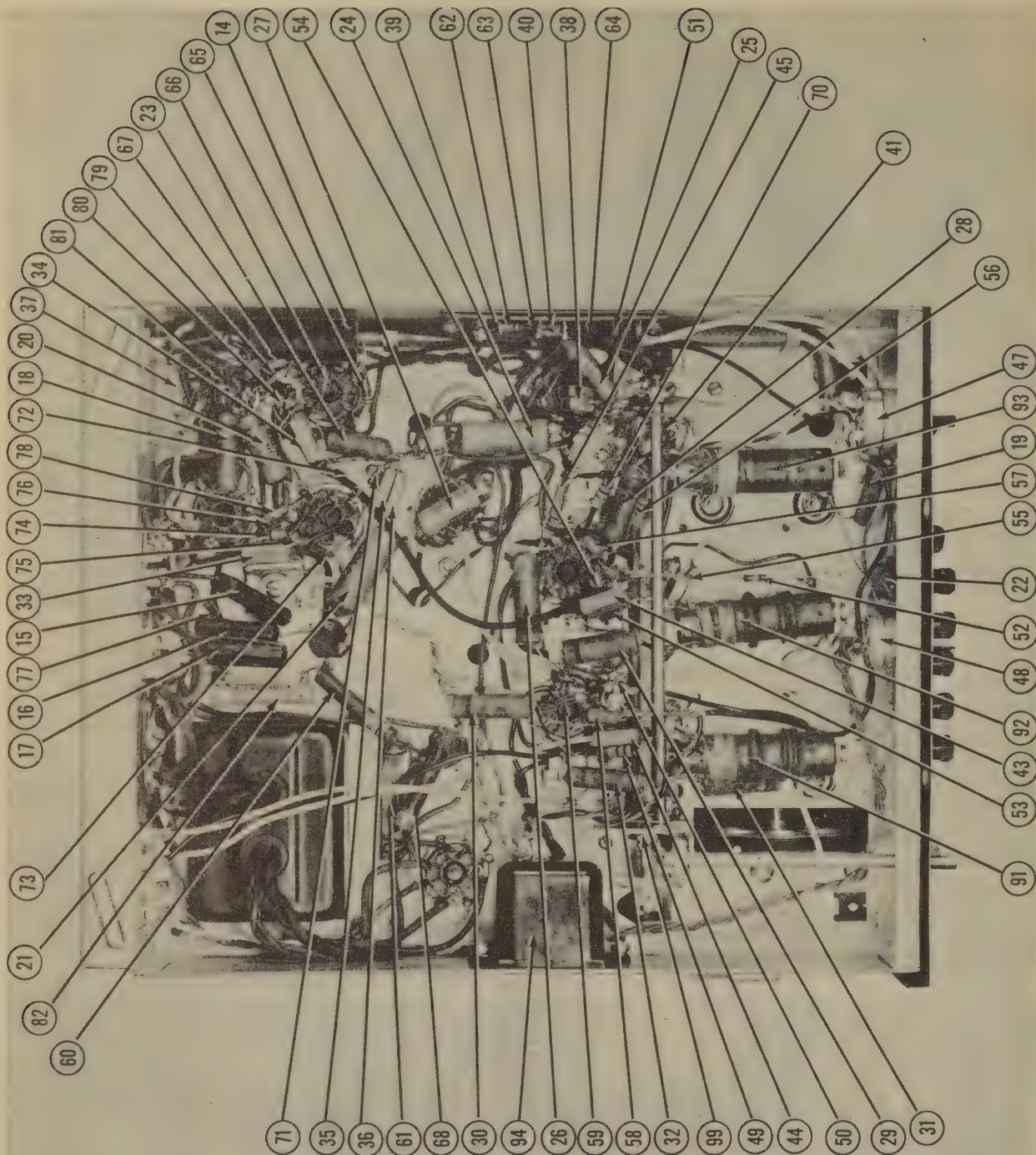
PUSHBUTTON ADJUSTMENTS

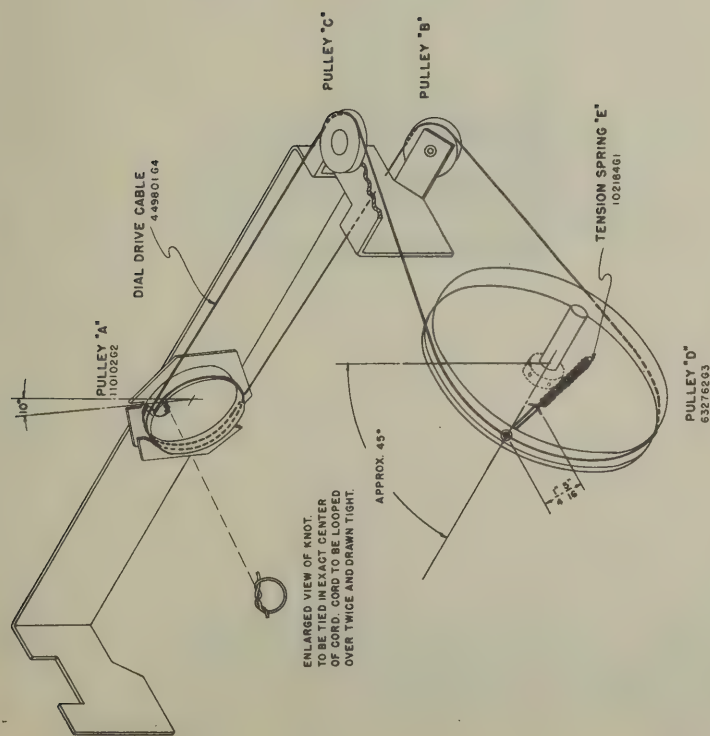
1. Turn receiver on and allow it to warm up for about 15 minutes. Turn selectivity switch to "sharp tune" position. Loosen all buttons a few turns.
2. Make a list of desired stations ranging from high end of band to low end of band.
3. Manually tune in list station and push in manual tuning control so that the station cannot be detuned.
4. Push list button on right in completely and tighten firmly.
5. To check accuracy of setting, detune with manual tuning control. Then retune with push-button. If setting is off repeat last three steps.
6. To set up the remaining buttons follow the same procedure as outlined above setting up the buttons from right to left.

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





DIAL CORD REPLACEMENT

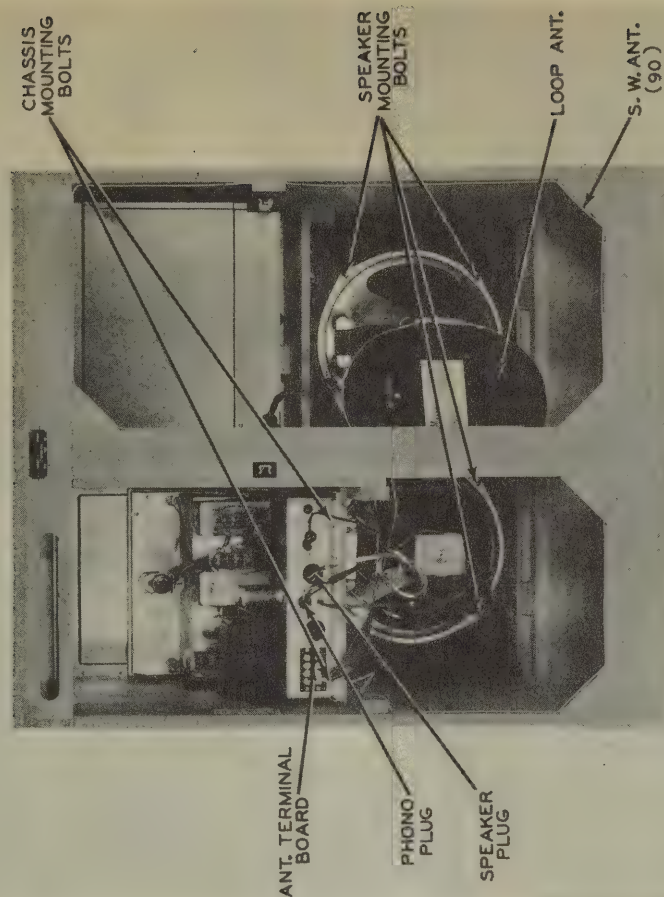
Rotate the brass pulley designated "A" in figure above until the dial pointer strikes the stop at the high frequency end of the dial calibration. In this condition the slot in pulley "A" should be approximately ten degrees to the left of being vertical—see figure above. If the slot in the pulley is in some other position under the above mentioned conditions, the pointer set screw is probably loose and has allowed the pointer to slip.

To correct this condition, first remove the glass dial and loosen the pointer screw. Then while holding pulley "A" so that its slot is approximately ten degrees to the left of vertical (when viewed from the rear) adjust the pointer until it is resting against the stop at the high frequency end of its travel. Then tighten the pointer set screw securely and replace the glass dial.

Completely unmesh the condenser gang and check the location of the hole or slot in pulley "D". If this hole is not approximately 45 degrees back from vertical as shown on figure above, loosen the two No. 6 Allen set screws in the hub of pulley "D" and slip the pulley on its shaft (while holding the condenser gang unmeshed) until the specified adjustment is obtained; then tighten one of the set screws securely. It will be shown later that this is a temporary setting. Next, tie a double knot in the exact center of a 25-inch length of dial cable and fold the cable back on itself so that the knot is at one end. The correct method for tying this knot is shown as an inset on figure above. Grasp the cable near the knotted end and slide it into the pulley slot so that the knot is against the inside rim of the pulley as shown in the sketch. The piece of cable nearest the dial frame should be wound in the direction shown, for one-half turn then over the lower pulley "B", around the bottom of the large pulley "D", and into the hole. Pull the cable taut and wrap the end around the small hook on pulley "D" temporarily.

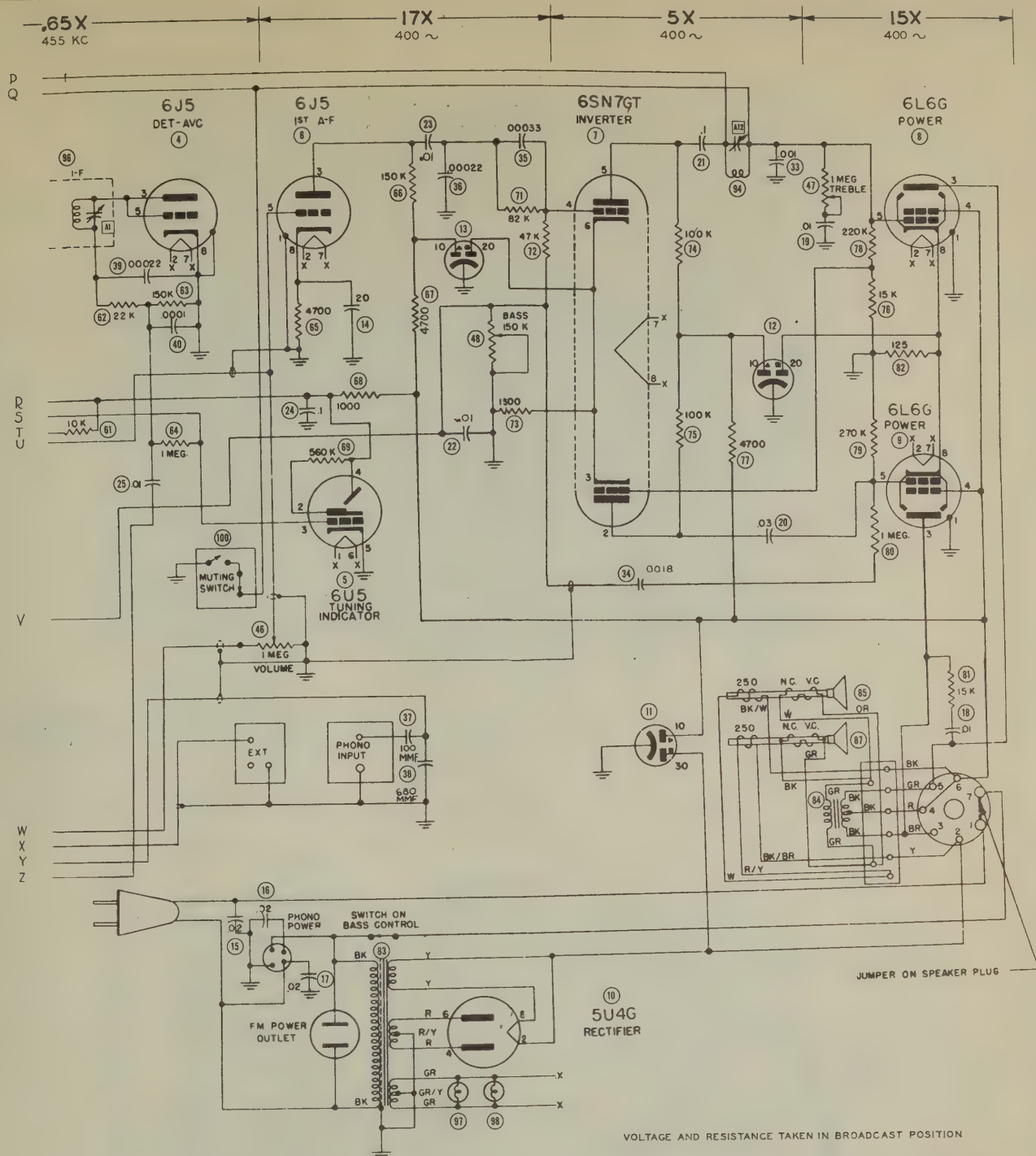
The remaining piece of cable should be wound around pulley "A" in the direction shown, for one complete turn, over the upper pulley "C", and over the top of pulley "D". Thread the end through the small hole in pulley "D" and pull both ends of the cable taut. With one end of tension spring "E" fastened to the hook on pulley "D" place the two free ends of the cable through the opposite end of the spring and tie a knot at a point that will allow 1/4" to 5/16" of cable between the spring and the inside rim of pulley "D". Be sure to tie the knot around one coil of the spring in the manner shown.

Now with the condenser gang completely meshed, check the position of the dial pointer. If it is not in line with the last calibration mark at the low frequency end of the dial, loosen the set screw in pulley "D" and turn it until the pointer is in the specified position. Be sure that the condenser gang does not move during this adjustment. Then tighten the two screws in pulley "D" securely completing the operation.



DISASSEMBLY INSTRUCTIONS

1. Remove five push-on type control knobs.
2. Remove loop ant. leads. White lead to L terminal and white-blk. to H terminal.
3. Remove cabinet ant. lead from S terminal.
4. Remove phono-motor plug.
5. Remove speaker plug.
6. Remove phono-pickup plug.
7. Remove FM tuner plug (if used).
8. Remove two Phillips head bolts and nuts mounting chassis to metal mounting plate.
9. Remove two hex head self-tapping screws holding chassis for shipment. Remove chassis.
10. Remove four Phillips head screws holding loop antenna brackets. Remove loop.
11. Remove 8 hex nuts and lock washers holding speakers to baffle. Remove speakers.



RESISTANCE READINGS								
ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7
1	6SK7	0 Ω	1 Ω	470 Ω	23MEG	470 Ω	10K Ω	22K Ω
2	6SA7	0 Ω	1 Ω	22K Ω	10K Ω	22K Ω	120 Ω	13MEG
3	6SK7	0 Ω	1 Ω	2000 Ω	6 Ω	2000 Ω	10K Ω	22K Ω
4	6J5GT	0 Ω	1 Ω	162K Ω	1NF	162K Ω	1NF	0 Ω
6	6J5	0 Ω	1 Ω	190K Ω	12MEG	850K Ω	28K Ω	4800 Ω
7	6SN7	13K Ω	120K Ω	1700 Ω	130K Ω	112K Ω	1700 Ω	1 Ω
8	6L6GA	0 Ω	1 Ω	22K Ω	22K Ω	220K Ω	28K Ω	115 Ω
9	6L6GA	0 Ω	1 Ω	22K Ω	22K Ω	250K Ω	38K Ω	115 Ω
10	5U4G	1NF	22K Ω	1NF	48 Ω	1NF	44 Ω	22K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

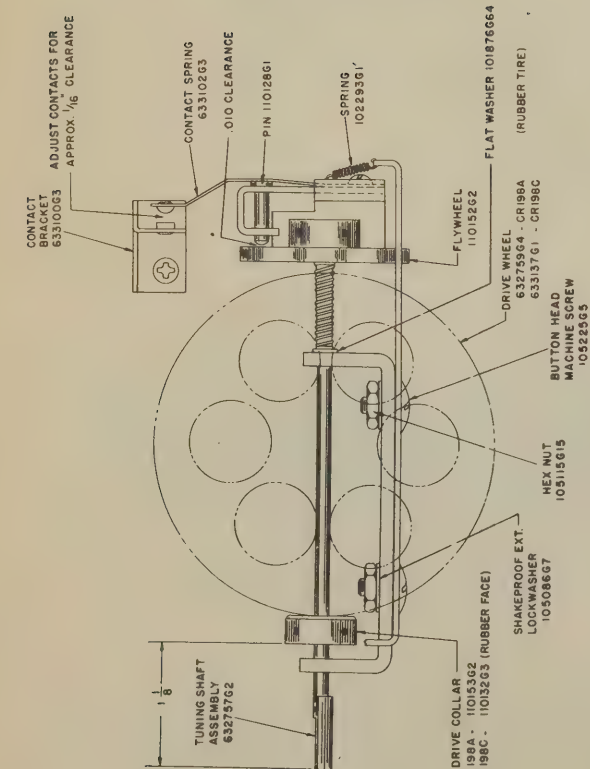


FIGURE A

CONDENSER GANG DRIVE ADJUSTMENTS

Whenever any of the mechanical parts in the condenser gang drive assembly require replacement due to rough handling or for any other reason, it is extremely important that clearances and adjustment shown on figures A and B are correct; otherwise, the tuning mechanism will be sluggish or it may slip during operation.

In reassembling the mechanism after any part was replaced, follow the procedure outlined below:

1. Assemble the Tuning Shaft, Drive Collar, Compression Spring and Flywheel in the order shown on figure B. The distance between the front of the Drive Collar and the front of the Tuning Shaft must be 1-1/8 inches as specified on figure A. Install the Flywheel on the rear of the Tuning Shaft and slide it forward until it nearly touches the edge of the Drive Wheel; then tighten one of the set screws in the Flywheel hub. Insert a .010" gauge between the Flywheel and the Pin, and while holding the gauge in this position, loosen the set screw in the Flywheel hub that was previously tightened. The Compression Spring should force the Flywheel back against the gauge--when this occurs, tighten both set screws in the Flywheel hub.
2. Adjust the Tuning Switch contact clearance by loosening the two screws in the Contact Bracket and sliding the bracket in the required direction until a 1/16" clearance is obtained. If this adjustment cannot be obtained in the manner prescribed, bend the Contact Bracket until proper clearance is realized.
3. The Drive Wheel is properly located on its shaft when its edge nearest the hub is in line with the outside edge of the Drive Collar as shown on figure B. Two Allen set screws in the Drive wheel hub provide a means of adjusting the position of this wheel.

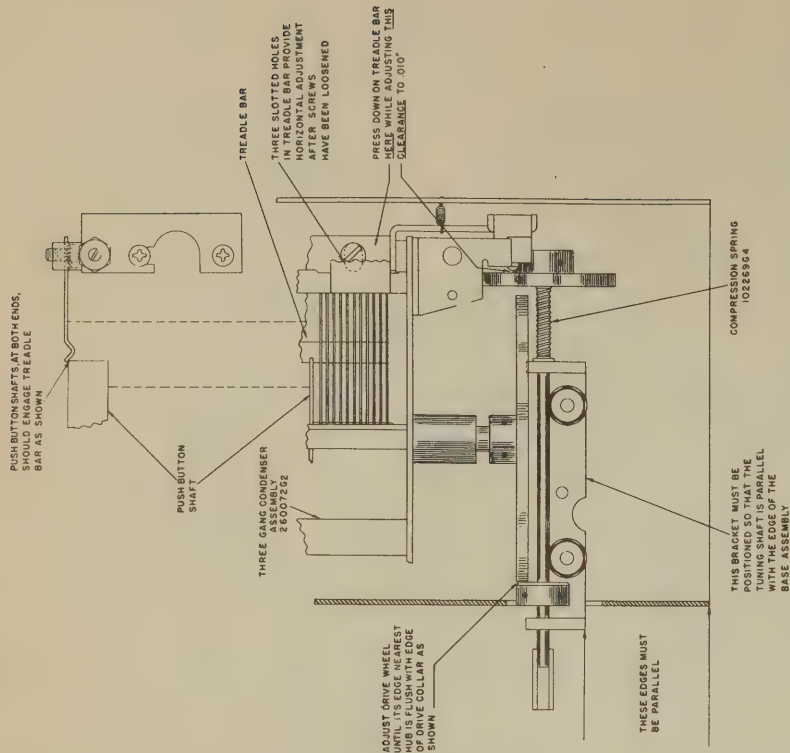
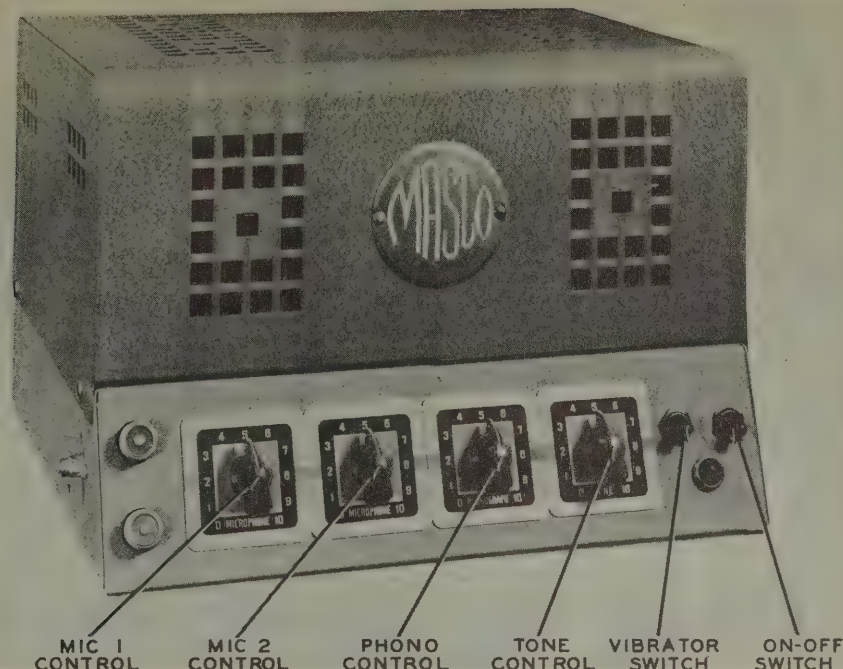


FIGURE B

4. When the adjustment outlined in paragraph 2 is correct, the proper contact clearance will automatically be obtained when the Tuning Switch is to be "tuned" while the push buttons are being set. While pressure is applied to any one of the push buttons while they are being set up, a pressure applied simultaneously to the Tuning Control knob will cause the Tuning Switch contacts to open. Detailed instructions on setting up these push buttons are shown elsewhere in this Photostat Folder.
5. If the push button shafts at both ends do not engage the Treadle Bar as shown on figure B, the three screws in the Treadle Bar must be loosened and the Treadle Bar should be moved until the required condition is obtained.



MASCO MODEL MC-25

TRADE NAME	Masco Model MC-25, MC-25P
MANUFACTURER	Mark Simpson Mfg. Co., Inc., 32-28 49th St., Long Island City, N.Y.
TYPE SET	AC Operated 3 Channel 7 Tube Amplifier
TUBES (SEVEN)	Types, 7B4 Mic. Amp., 7B4 Mic. Amp., 7N7 Mixer-Phono. Amp. 7N7 Phase Inv.-AF, (2) 6L6GA Power Output, 5U4G Rectifier.
POWER SUPPLY	110-120 Volts AC or 6 Volts DC
RATING	1.35 Amp. @ 117V AC or 14 Amp. @ 6 Volts DC

CONTROLS SET AT MAXIMUM FOR VOLTAGE AND RESISTANCE READINGS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B4	22V _{AC}	115V _{DC}	182V _{DC}	0V _o	0V _o	-5V _{DC}	0V _o	4.3V _{AC}
2	7B4	4.3V _{AC}	118V _{DC}	182V _{DC}	182V _{DC}	0V _o	-5V _{DC}	0V _o	2.2V _{AC}
3	7N7	4.3V _{AC}	2.6V _{DC}	72V _{DC}	0V _o	0V _o	72V _{DC}	2.6V _{DC}	2.2V _{AC}
4	7N7	2.2V _{AC}	4.8V _{DC}	133V _{DC}	0V _o	0V _o	133V _{DC}	4.8V _{DC}	4.3V _{AC}
5	6L6GA	0V _o	2.2V _{AC}	400V _{DC}	340V _{DC}	0V _o	0V _o	4.3V _{AC}	2.6V _{DC}
6	6L6GA	0V _o	4.3V _{AC}	400V _{DC}	340V _{DC}	0V _o	0V _o	2.2V _{AC}	2.6V _{DC}
7	5U4G	0V _o	430V _{DC}	0V _o	380V _{AC}	430V _{DC}	380V _{AC}	0V _o	430V _{DC}

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B4	.1 _o	275K _o	170K _o	INF _o	INF _o	15MEG _o	0 _o	.1 _o
2	7B4	.1 _o	285K _o	170K _o	170K _o	INF _o	15MEG _o	0 _o	.1 _o
3	7N7	.1 _o	1000 _o	210K _o	235K _o	415K _o	210K _o	1000 _o	.1 _o
4	7N7	.1 _o	1000 _o	210K _o	10K _o	550K _o	210K _o	1000 _o	.1 _o
5	6L6GA	0 _o	.1 _o	150K _o	150K _o	95K _o	INF _o	.1 _o	180 _o
6	6L6GA	0 _o	.1 _o	150K _o	150K _o	95K _o	INF _o	.1 _o	180 _o
7	5U4G	INF _o	150K _o	0 _o	85 _o	150K _o	67 _o	INF _o	150K _o

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MASCO PART No.	STANDARD REPLACEMENT		
1	Mic. Amp.	7B4	7B4	5AC	
2	Mic. Amp.	7B4	7B4	5AC	
3	Mixer-Phono Amp.	7N7	7N7	8AC	
4	Phase Inv.-AF	7N7	7N7	8AC	
5	Power Output	6L6GA	6L6GA	7AC	
6		6L6GA	6L6GA	7AC	
7	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

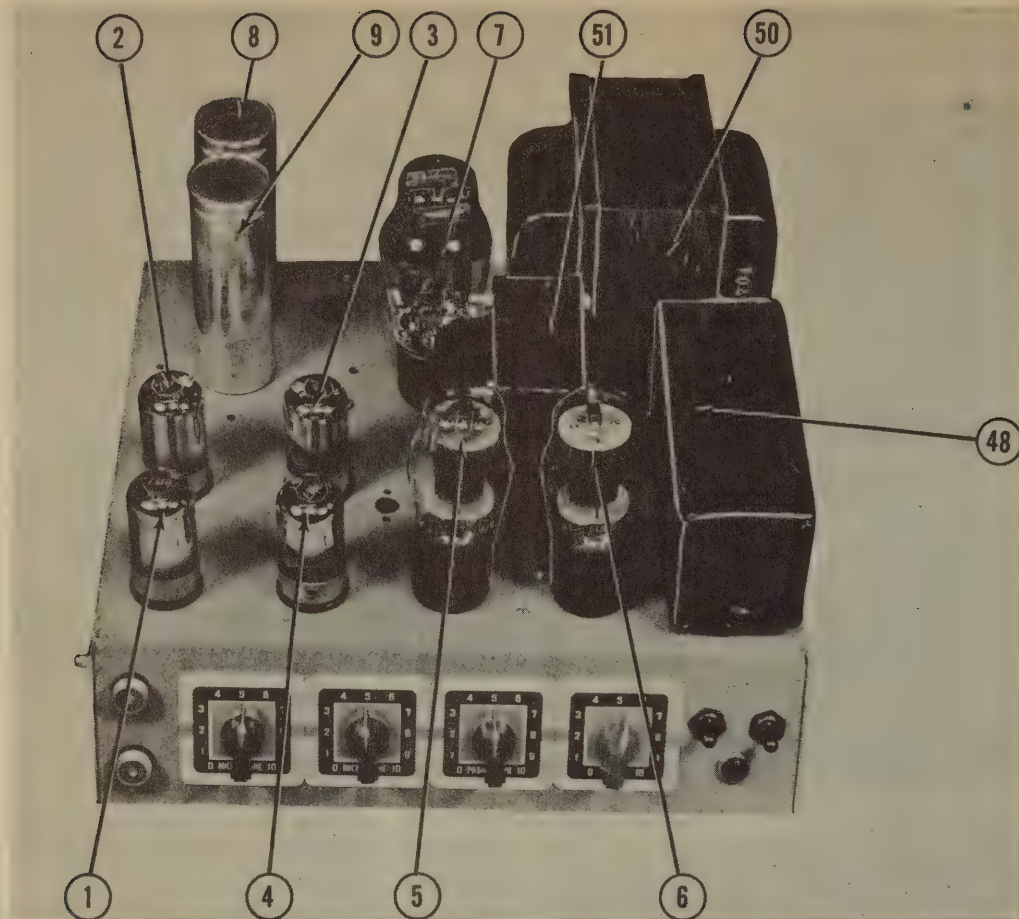
ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	MASCO PART No.	AEROVOX PART No.	CORNEILL-DUBILIER PART No.	MALLOY PART No.	SOLAR PART No.		
8	8	600		GL600-8	KR808	HS893	D-8-600	AP-86	Filter
9	8	600		GL600-8	KR808	HS893	D-8-600	AP-86	"
10A	8	450		PR6A450-8-B	EZ3845	2N518	M-2x8-450	UT-88	" - Red
B	8	450							"
11	8	450		PR8450-8	BR845	TC71	M-8-450	UT-8	"
12	10	50		PR850-10	BR105	TC32	M-10-50	TA-510	"
13	1	600		684-1	TD418	TP418	S-6-1	TC-1	Cath. Bypass
14	1.5	600		684-.5	TD6F5	TP432	S-6-1	TC-5	Fillament Bypass
15	1	600		684-1	TD6F1	TP418	S-6-1	TC-1	Hash Filter
16	.006	1600		1684-006	MD16D6	OW344	TW-16-006	TC-26	Buffer
17	1	600		684-1	TD6F1	TP418	S-6-1	TC-1	Audio Coupling
18	1	600		684-1	TD6F1	TP418	S-6-1	TC-1	"
19	.01	600		684-01	TD6S1	TP418	S-6-01	TC-11	Tone Compensation
20	1	600		684-1	TD6F1	TP418	S-6-1	TC-1	Audio Coupling
21	.01	600		684-01	TD6S1	TP418	S-6-01	TC-11	"
22	.01	600		684-01	TD6S1	TP418	S-6-01	TC-11	"
23	.005	600		684-005	TD6D5	TP408	S-6-005	TC-25	Mic. Coupling
24	.005	600		684-005	TD6D5	TP408	S-6-005	TC-25	"
25	1	600		684-1	TD6F1	TP418	S-6-1	TC-1	Hash Filter

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			CLAROSTAT PART No.	INSTALLATION NOTES
	RESIST-ANCE	WATTS	MASCO PART No.	MALLOY PART No.	IRC PART No.		
26A	500KΩ	1	NR48	NR48	DL3-133	M-60-Z	Mike 1 Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 28A per instructions
27A	500KΩ	1	NR48	NR48	DL3-133	M-60-Z	Mike 2 Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 27A per instructions
28A	500KΩ	1	NR48	NR48	DL3-133	M-60-Z	Photo Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 28A per instructions
29A	500KΩ	1	NR48	NR48	DL3-133	M-60-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 29A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		YASCO PART No.	IRC PART No.	
30	15 Meg.	1/2	BTS-15 Meg.	Br. Grn.-Blue Mike 1 Grid
31	15 Meg.	1/2	BTS-15 Meg.	Br. Grn.-Blue Mike 2 Grid
32	100KQ	1/2	BTS-100K	Br. Blk.-Yl. Mike 1 Plate
33	100KQ	1/2	BTS-100K	Br. Blk.-Yl. Mike 2 Plate
34	100QZ	1/2	BTS-100Q	Br. Blk.-Red Mixer Cathode
35	347KQ	1/2	BTS-47K	Yl.-Vi.-Or. Mixer Plate Load
36	500KQ	1/2	BTS-470K	Grn.-Blk-Yl. Driver Grid
37	47KQ	1/2	BTS-47K	Yl.-Vi.-Or. Driver Plate Load
38	47KQ	1/2	BTS-47K	Yl.-Vi.-Or. Ph. Inv. Plate Load
39	10KQ	1/2	BTS-10K	Br. Blk.-Or. Ph. Inv. Grid
40	100KQ	1/2	BTS-100K	Br. Blk.-Yl. Output Grid



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MASCO PART No.	IRC PART No.	
41	100K Ω	1/2	BTS-100K	Br.-Blk.-Yl.	Output Grid
42	200 Ω	10	AB-200	AB-200	Output Cathode
43	5000 Ω	10	AB-5000	AB-5000	Filter
44	12K Ω	1/2	BTS-12K	Br.-Red-Or.	Filter
45	12K Ω	1/2	BTS-12K	Br.-Red-Or.	Filter
46	1000 Ω	1/2	BTS-1000	Br.-Blk.-Red	Driver Cathode
47	3 Meg.	1/2	BTS-3.3 Meg.	Or.-Blk.-Grrl.	Feedback

VIBRATOR

ITEM No.	TYPE	REPLACEMENT DATA			INSTALLATION NOTES
		INPUT VOLTS/FREQUENCY	MASCO PART No.	MALLORY PART No.	
48	Synchronous	6.3 60 \sim	491		

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA		INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (1000 μ)	MASCO PART No.	THORDARSON PART No.	
49	.136A	120 Ω	8 Henries	C-235	Q-2509*	*Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI	SEC. 1	SEC. 2	MASCO PART No.	THORDARSON PART No.	
50	117V AC @ 1.35A 6.0V DC @ 12.3A	750V CT 5.0V AC @ .136A	SEC. 3 6.3V AC @ 3.7A	A-25X		In AC use, the 6.3V AC is obtained from taps on this winding in battery operation this 6.3V is obtained from the battery, and the taps are not used.

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	SEC.	MASCO PART No.	THORDARSON PART No.	
51	10,000 Ω CT	240 Ω CT	.4 Ω CT	0-25	A-3511*	*Drill new mounting holes.

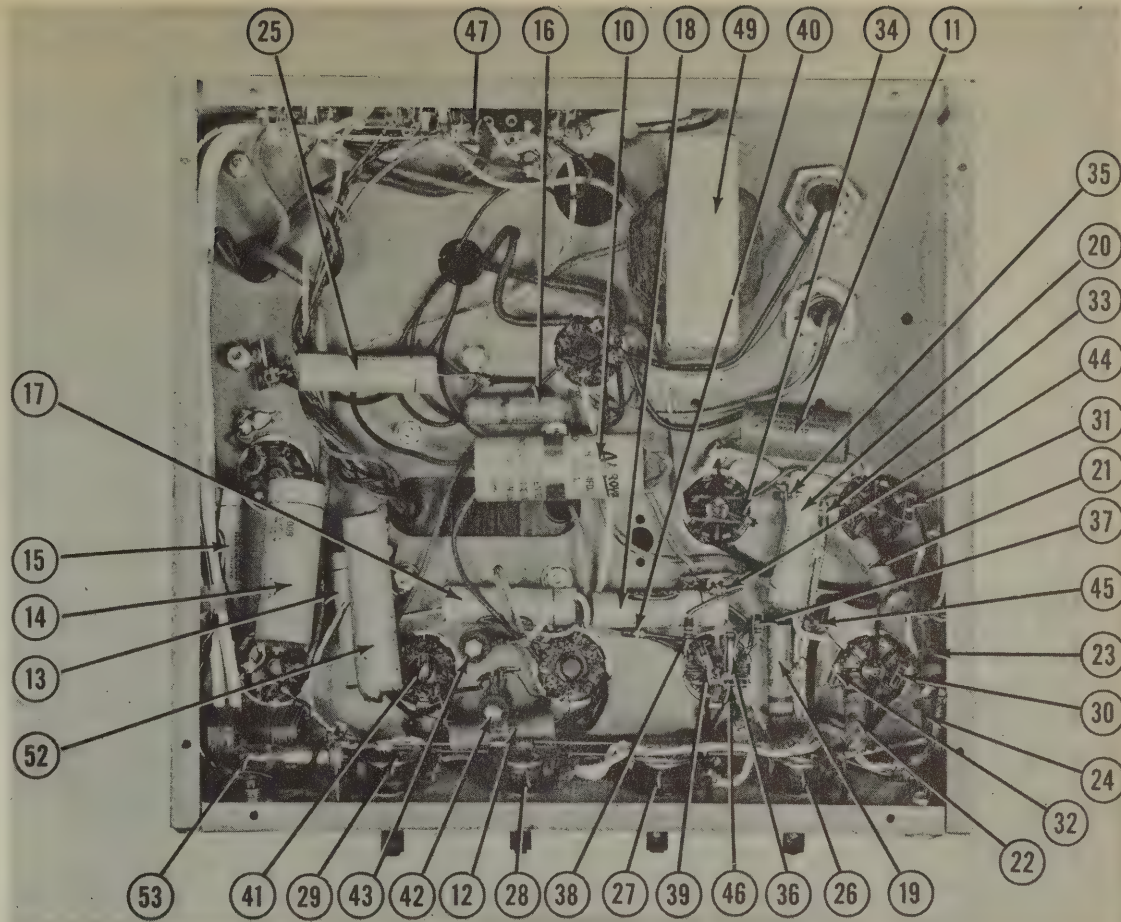
R F COILS

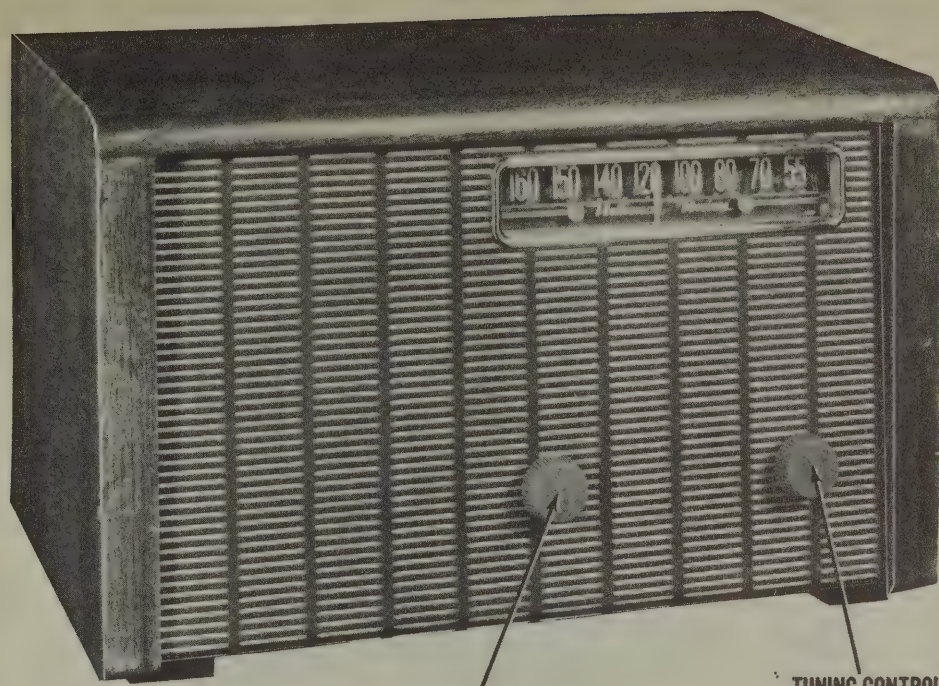
ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		DC RES.	MASCO PART No.	WEISSNER PART No.	
52	RF Choke	PRI. SEC. 0 Ω			

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	MASCO PART No.	
53	Bayonet	6-8	0.15	Brown		Type 47

CHASSIS—BOTTOM VIEW





NATIONAL UNION
MODELS 571, 571A, 571B

NATIONAL UNION
MODELS 571, 571A, 571B

NATIONAL UNION MODEL 571

TRADE NAME	National Union, Models 571, 571A, 571B					
SUPPLIER	National Union Radio Corp., Newark 2, N.J.					
TYPE SET	AC-DC Operated Superheterodyne-Self Contained Loop Antenna					
TUBES (FIVE)	Types, 12SA7GT/G Converter, 12SK7GT/G IF Amp., 12SQ7GT/G Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.					
POWER SUPPLY	105-125 Volts AC-DC					
TUNING RANGE—BROADCAST	540-1600KC	RATING	.240 Amp. @ 117 Volts AC			
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin 8 (grid) of 12SA7, Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
	Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
	"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

NATIONAL UNION
MODELS 571, 571A, 571B

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			RMA BASE TYPE	INSTALLATION NOTES
		NATIONAL UNION PART No.	STANDARD REPLACEMENT			
1	Converter	12SA7GT/G	12SA7GT/G		8AD	
2	IF Amp.	12SK7GT/G	12SK7GT/G		8N	
3	Det.-AVC-AF	12SQ7GT/G	12SQ7GT/G		8Q	
4	Power Output	50L6GT	50L6GT		7AC	
5	Rectifier	35Z5GT/G	35Z5GT/G		6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		NATIONAL UNION PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	
6A	40	A-6948	AF944D1	UF4215	FP3061	EL-24
7	20					
8	.05	BC31R803	484-05	DT485	TP426	TC-15
9	.02	BD410203	484-02	DT482	TP423	TC-12
10	.02	BD410203	484-02	DT482	TP423	TC-12
11	.01	BD410103	484-01	DT481	TP421	TC-11
12	.1	BD410104	484-1	DT481	TP421	TC-11
13	.05	BD210503	484-05	DT485	TP426	TC-15
14	470	BM78A471	1468-0005	5W575	MC245	LFM-35
15	100	BM78A101	1468-0001	5W571	MC235	LFM-31

†Do not use bypass section.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		NATIONAL UNION PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
15A	500KΩ	B-9051-1	PK401	D13-133	AM-60-Z	Volume Control
16	500KΩ	Not Req.	Not Req.	KSS-3		Attach to 15A per instructions
17	500KΩ	Not Req.	Not Req.	41	SW-A	

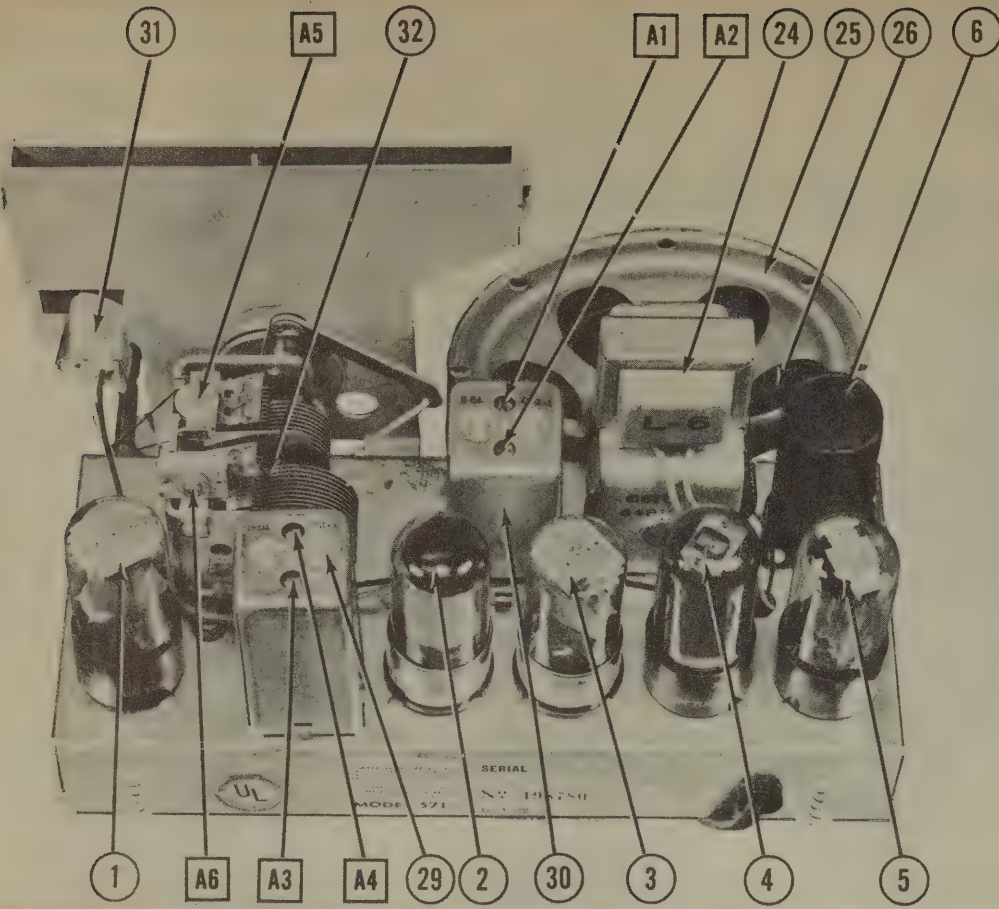
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		NATIONAL UNION PART No.	IRC PART No.		
16	22KΩ	BR17B223	BTS-22K		Red-Red-Or. Oscillator Grid
17	15 Meg.	BR17B156	BTS-15 Meg.		Br.-Grn.-Blue AVC Network
18	220KΩ	BR17B224	BTS-220K		Red-Red-VI. Line Isolation
19	3.3 Meg.	BR17B335	BTS-3.3 Meg.		Or.-Or.-Grn. AVC Network
20	6.8 Meg.	BR17B685	BTS-6.8 Meg.		Blue-Gray-Grn. AF Grid
21	470KΩ	BR17B474	BTS-470K		VI.-VI.-VI. AF Plate Load
22	470KΩ	BR17B474	BTS-470K		VI.-VI.-VI. Output Grid
23	150Ω	BR16C151	BW-1-150		Br.-Grn.-Br. Output Cathode

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		NATIONAL UNION PART No.	STANCOR THORDARN PART No.	
24	4000Ω	3.5Ω	240Ω	.7Ω	A-3856* C-51014	T22946*

*Bend mounting tabs down, file out slots and mount on original bracket.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		NATIONAL UNION PART No.	JENSEN PART No.	
25	FIELD RES. 10K IMP. 3.5Ω	C-51014	ST-194† Mod. P5-X	†Parallel Field Coil with 1500Ω 10 watt resistor. Drill and tap magnet frame.
26	CONC. DIA. 1/2" 4-3/4"	NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

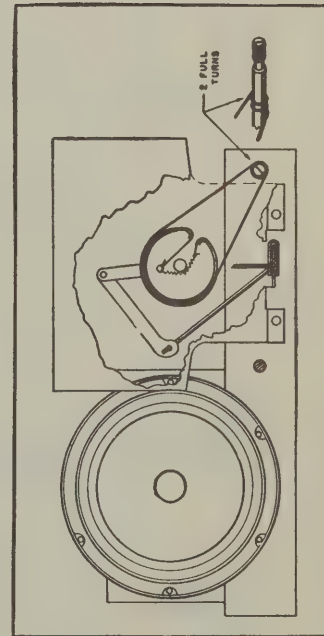
ITEM No.	USE	REPLACEMENT DATA		
		DC RES.	NATIONAL UNION PART No.	MEISSNER PART No.
27	Loop Ant.	PRI.	1Ω	
28	Osc. Coil	SEC.	5.5Ω	14-1040
29	Input IF		30Ω	B-51010-1
30	Output IF		30Ω	B-51011-1

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	NATIONAL UNION PART No.	
31	Bayonet	6-8	0.15	Brown	A-6158	Type 47

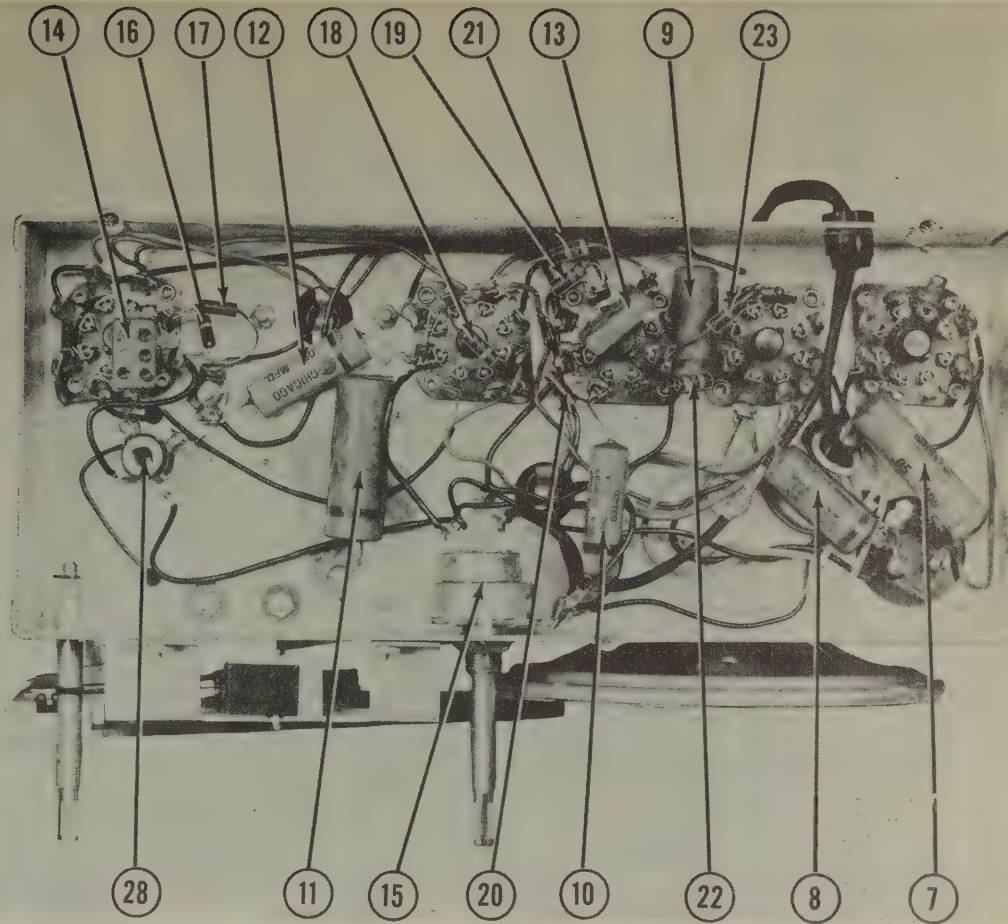
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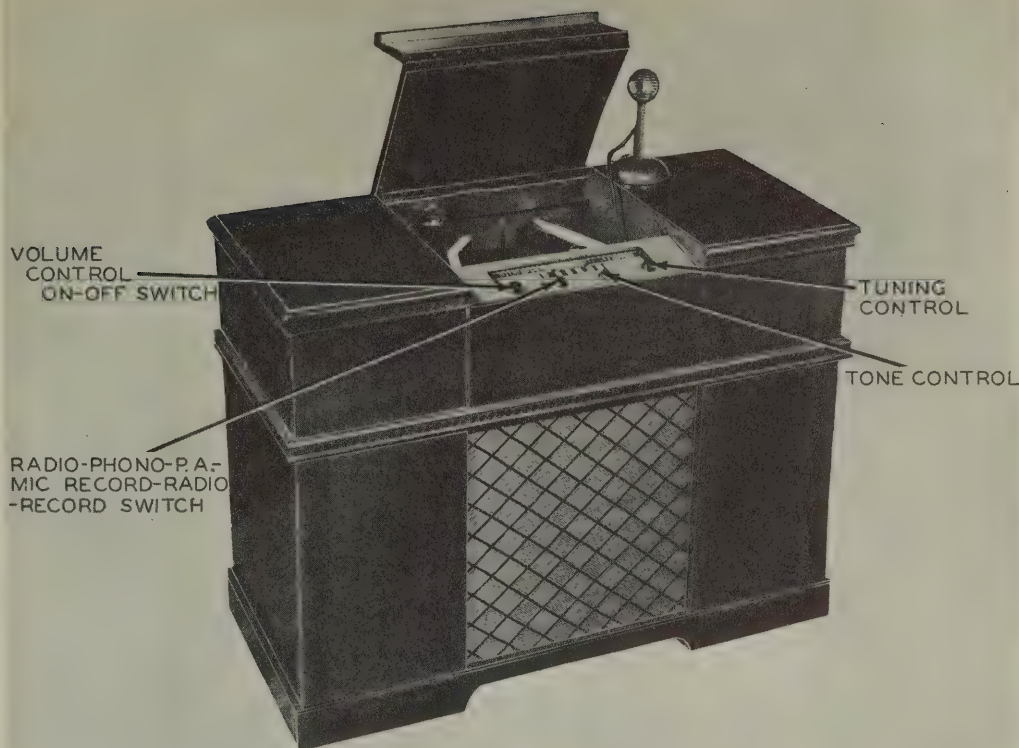
ITEM No.	PART NAME	NATIONAL UNION PART No.	NOTES
32	2 Gang Var. Cap	C-51155-1	28-485 MTF, 29-192 MTF



Dial Mechanism

CHASSIS—BOTTOM VIEW





PACKARD-BELL MODEL 861

TRADE NAME	Packard-Bell Model 861		
MANUFACTURER	Packard-Bell Co., 3443 Wilshire Blvd., Los Angeles, Calif.		
TYPE SET	AC Operated Combination Phono - Recorder - Public Address - Superheterodyne Loop Antenna		
TUBES (EIGHT)	Types, 6SK7GT RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6H6 Det.-Comp. Rect.-AVC, 6SF7 AF Amp., 6SQ7 Mic. Amp., 6V6GT/G Power Output; 5Y3GT/G Rectifier.		
POWER SUPPLY	110-120 Volts AC		
TUNING RANGE—BROADCAST	540-1620KC	RATING	.430 Amp. @ 117 Volts AC
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT			
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency mark at low frequency end of dial. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.			

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to Pin 8 (grid) 6SA7. Low side to chassis.	455KC	Tuning cap. closed.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200MMFD	High side to white lead on ant. plug. Low side to chassis.	1620KC	Tuning cap. fully open.	"	A5	" " " "
200MMFD	"	600KC	600KC	"	A6	Rock tuning cap and adjust for maximum output.
200MMFD	"	1500KC	Tune for maximum output.	"	A7,A8.	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		PACKARD-BELL PART No.	STANDARD REPLACEMENT	BMA BASE TYPE	
1	RF Amp.	6SK7GT	6SK7GT	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-Comp. Rect.	6H6	6H6	7Q	
5	AF Amp.	6SF7	6SF7	7AZ	
6	Mic. Amp.	6SQ7	6SQ7	8Q	
7	Power Output	6V6GT	6V6GT	71C	
8	Rectifier	5Y3GT/G	5Y3GT/G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PACKARD-BELL PART No.	AEROVOX PART No.	CORNELL-DUBIER PART No.	SOLAR PART No.	
9	40	24030	PRS450-40	BR4045	TC-78	2-UT-203 Filter
10	20	350	PRS450-20	BR2045	TC-203	Bias Filter
11	11	400	484-05	D74S5	TC-15	Audio Coupling
12	12	600	684-02	D76S2	TC-12	Output Plate Bypass
13	13	600	684-005	D76D8	TC-25	Compression Coupling
14	14	600	684-01	D76S1	TC-11	Tone Compensation
15	15	600	684-001	D76D1	TC-21	Audio Plate Decoup.
16	16	2	484-2	D74P2	S-4-2	Audio Screen Bypass
17	17	2	484-1	D74P1	TC-2	Compression Filter
18	18	400	684-05	D76D5	TC-1	Audio Coupling
19	19	600	684-02	D74S2	TC-25	Screen Bypass
20	20	600	684-05	D74S5	TC-12	AVC Filter
21	21	600	684-05	D74S5	TC-15	Screen Decoupling
22	22	600	684-05	D74S5	TC-15	Tone Compensation
23	23	600	684-05	D74S5	TC-15	Osc. Grid Capacitor
24	24	470	1468-00005	SW5T5	LFM-35	RF Coupling
25	25	500	1468-00002	SW5T2	LFM-45	RF Pri. Shunt
26	26	220	1468-00005	SW5T5	LFM-32	RF Coupling
27	27	47	1468-00002	SW5T2		
28	28	220	1468-00002	SW5T2		

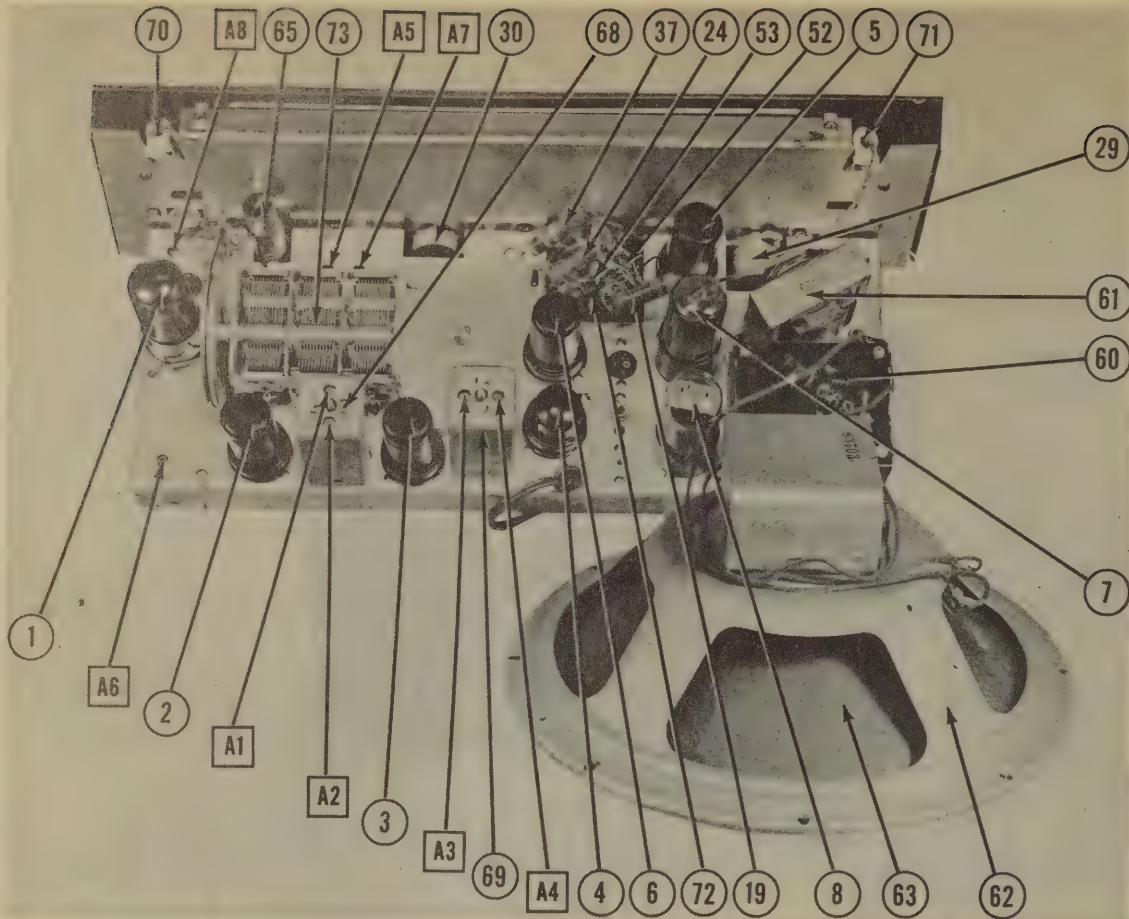
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PACKARD-BELL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
29A	1 Meg.	25010B	MFT440	D13-137X	T-110	Volume Control
30A	5 Meg.	25506B	Not Req.	A	Not Req.	Attach to 29A per instructions.
31A	1 Shaft	Not Req.	Not Req.	41	SW-A	Tone Control
32A	1 Shaft	Not Req.	Not Req.		Not Req.	Attach to 30A per instructions.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		PACKARD-BELL PART No.	IRC PART No.	IRC PART No.	
31	2.2 Meg.	73055	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn. RF Grid
32	390	73008	BW-4-39	BW-4-39	Or.-White-Blk. RF Cathode
33	2.2 Meg.	73055	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn. Converter Grid
34	22K	73041	BTS-22K	BTS-22K	Red-Red-Or. Oscillator Grid
35	390K	73020	BW-4-390	BW-4-390	Or.-White-Br. IF Cathode
36	1 Meg.	73053	BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
37	10K	73125	BT-2-10K	BT-2-10K	Br.-Blk.-Or. Screen Dropping
38	220K	73049	BTS-220K	BTS-220K	Red-Red-VI. Diode Load
39	22K	73041	BTS-22K	BTS-22K	Red-Red-Or. Diode Load
40	470K	73051	BTS-470K	BTS-470K	VI.-VI.-VI. Audio Voltage Divider
41	2.2 Meg.	73055	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn. Compression Coupling

CHASSIS—TOP VIEW

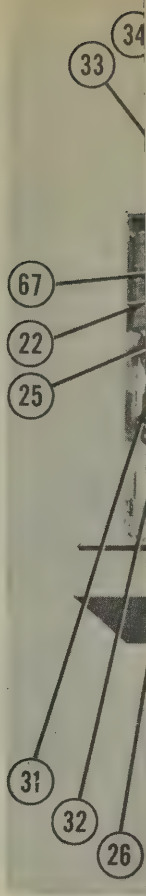


PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		PACKARD-BELL PART No.	IRC PART No.	
42	220K2	73049	BTS-220K	Red-Red-Yl. Compression Diode Load
43	4.7 Meg.	73057	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
44	392	73008	BN-4-39	Or.-White-Blk. 1st AF Cathode
45	1.5 Meg.	73054	BTS-1.5 Meg.	Br.-Grn.-Grn. 1st AF Screen Dropping
46	220K2	73049	BTS-220K	Red-Red-Yl. 1st AF Plate Load
47	47K2	73045	BTS-47K	Yl.-Vi.-Or. Decoupling
48	5002	73022	BTS-560	Grn.-Blue-Br. Feedback
49	100K2	73047	BTS-100K	Br.-Blk Yl. Mic. Amp. Plate Load

CHASSIS—BOTTOM VIEW



VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

VOLTAGE READINGS

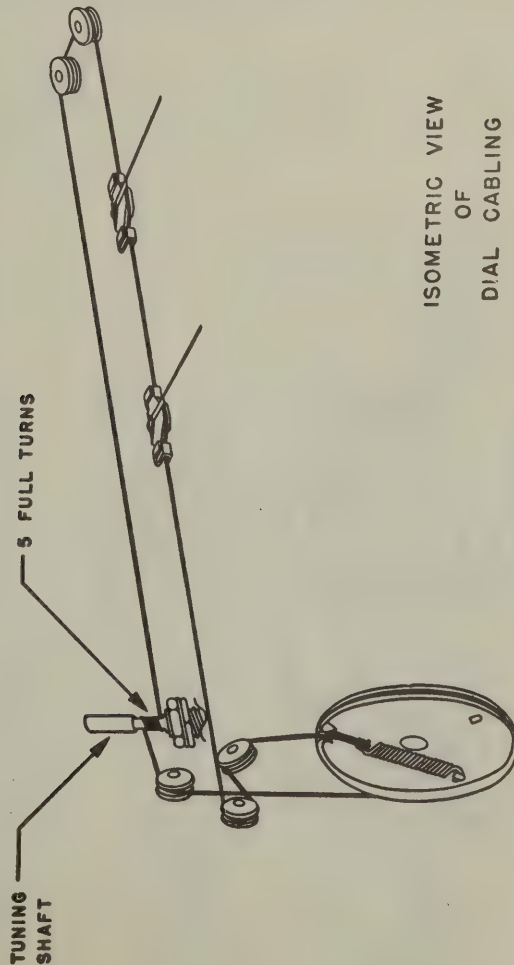
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0V.	0V.	0V.	0V.	5V.DC	87V.DC	5.9V.AC	187V.DC
2	6SA7	0V.	0V.	187V.DC	87V.DC	-3.8V.DC	0V.	5.9V.AC	0V.
3	6SK7	0V.	0V.	0V.	0V.	3V.DC	87V.DC	5.9V.AC	187V.DC
4	6H6	0V.	0V.	-8V.DC	0V.	-1V.DC	0V.	5.9V.AC	15V.DC
5	6SF7	0V.	-4V.DC	0V.	11V.DC	0V.	62V.DC	5.9V.AC	0V.
6	6SQ7	0V.	-4V.DC	0V.	0V.	100V.DC	5.9V.AC	0V.	0V.
7	6V6GT/G	0V.	0V.	235V.DC	190V.DC	-7.5V.DC	150V.DC	5.9V.AC	0V.
8	5V3GT/G	0V.	245V.DC	0V.	250V.AC	0V.	250V.AC	0V.	245V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0Ω	0Ω	0Ω	3MEG.	37Ω	100KΩ	1Ω	90KΩ
2	6SA7	0Ω	0Ω	90KΩ	100KΩ	22KΩ	15Ω	1Ω	3.2MEG
3	6SK7	0Ω	0Ω	0Ω	1 MEG	350Ω	100KΩ	1Ω	90KΩ
4	6H6	0Ω	0Ω	0Ω	250KΩ	0Ω	200KΩ	1Ω	490KΩ
5	6SF7	0Ω	4.5MEG	35Ω	1.8MEG	0Ω	330KΩ	1Ω	0Ω
6	6SQ7	0Ω	4.5MEG	0Ω	0Ω	0Ω	240KΩ	1Ω	0Ω
7	6V6GT/G	0Ω	0Ω	90KΩ	90KΩ	700KΩ	125KΩ	1Ω	0Ω
8	5V3GT/G	0Ω	90KΩ	240KΩ	250Ω	130Ω	250Ω	1.8MEG	90KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt. AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



ISOMETRIC VIEW OF DIAL CABLING

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PACKARD-BELL PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7GT	6SK7GT	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-Comp. Rect.	6H6	6H6	7Q	
5	AF Amp.	6SF7	6SF7	7AZ	
6	Mic. Amp.	6SO7	6SO7	8Q	
7	Power Output	6V6GT	6V6GT	7AC	
8	Rectifier	5Y3GT/G	5Y3GT/G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

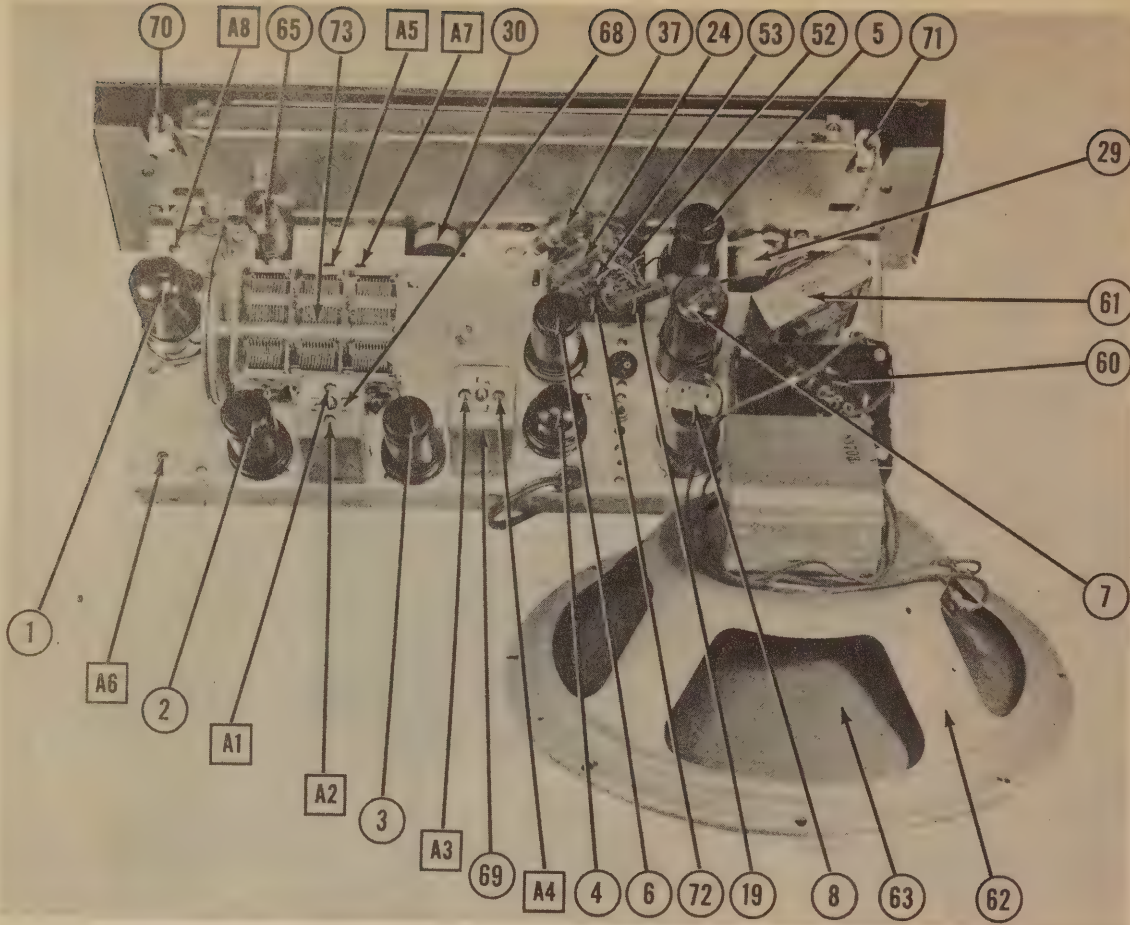
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PACKARD-BELL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
9	40	24030	PRS450-40	BR4045	TC-78	2-UT-203 Filter
10	20	24003	PRS450-20	BR2045	TC-5	Bias Filter
11	10	23009	484-05	DT485	TP426	Audio Coupling
12	.05	400	634-02	DT6S2	TP412	Output Plate Bypass
13	.005	600	23007	634-005	TP408	Compression Coupling
14	.01	600	23006	634-01	TP410	Tone Compensation
15	.001	600	23001	634-001	TP404	Audio Screen Bypass
16	.2	400	23020	484-2	TP429	Audio Coupling
17	.2	400	23020	484-2	TP429	Audio Coupling
18	.1	400	23019	484-1	TP428	Audio Coupling
19	.005	600	23004	634-005	TP408	Screen Bypass
20	.02	600	23007	634-02	TP412	AVC Filter
21	.05	400	23009	484-05	TP426	Screen Decoupling
22	.05	400	23009	484-05	TP426	Tone Compensation
23	.05	400	23009	484-05	TP426	RF Coupling
24	470	500	23912	1468-0005	TC-15	RF Coupling
25	47	500	23912	1468-0005	TC-15	RF Coupling
26	220	500	23912	1468-0002	TC-15	RF Coupling
27	47	500	23912	1468-0005	TC-15	RF Coupling
28	220	500	23912	1468-0002	TC-15	RF Coupling

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PACKARD-BELL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
29A	1 Meg. B Shaft	25010B	Not Req.	DI3-137X	T-110	Volume Control
30A	5 Meg. C Shaft	25506B	Not Req.	41	Not Req.	Attach to 29A per instructions.
31	1 Meg. B Shaft	25506B	Not Req.	41	Not Req.	Tone Control
32	5 Meg. C Shaft	25506B	Not Req.	41	Not Req.	Attach to 30A per instructions.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		PACKARD-BELL PART No.	IRC PART No.	
31	2.2 Meg.	73055	BTS-2.2 Meg.	Red-Red-Grn. RF Grid
32	390	73008	BM-4-39	Or.-White-Blk. RF Cathode
33	2.2 Meg.	73055	BTS-2.2 Meg.	Red-Red-Grn. Converter Grid
34	22K	73041	BTS-22K	Red-Red-Gr. Oscillator Grid
35	390K	73020	BM-4-390	Or.-White-Br. RF Cathode
36	1 Meg.	73053	BTS-1 Meg.	Br.-Blk-Grn. AVC Network
37	10K	73125	BT-2-10K	Red-Red-Vl. Screen Dropping
38	220K	73049	BTS-220K	Red-Red-Gr. Diode Load
39	22K	73051	BTS-22K	Red-Red-Gr. Diode Load
40	470K	73051	BTS-470K	Yl.-Vl.-Yl. Audio Voltage Divider
41	2.2 Meg.	73055	BTS-2.2 Meg.	Red-Red-Grn. Compression Coupling



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PACKARD-BELL PART No.	IRC PART No.	
42	220K Ω	1/2	73049	BTS-220K	Red-Red-Yl. Compression Diode Load
43	4.7 Meg.	1/2	73057	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
44	39 Ω	1/2	73008	BW-1-39	Or.-White-Blk. 1st AF Cathode
45	1.5 Meg.	1/2	73054	BTS-1.5 Meg.	Br.-Grn.-Grn. 1st AF Screen Dropping
46	220K Ω	1/2	73049	BTS-220K	Red-Red-Yl. 1st AF Plate Load
47	47K Ω	1/2	73045	BTS-47K	Yl.-Vi.-Or. Decoupling
48	560 Ω	1/2	73022	BTS-560	Grn.-Blue-Br. Feedback
49	100K Ω	1/2	73047	BTS-100K	Br.-Blk. Yl. Mic. Amp. Plate Load
50	1 Meg.	1/2	73053	BTS-1 Meg.	Br.-Blk.-Grn. Isolation
51	1.5 Meg.	1/2	73054	BTS-1.5 Meg.	Br.-Grn.-Grn. Audio Voltage Divider
52	.5 Ω	1/2	73910	BW-1-47	Br.-Blk.-Yl. Series Phono
53	100K Ω	1/2	73047	BTS-100K	Yl.-Vi.-Yl. Output Grid
54	470K Ω	1/2	73051	BTS-470K	Red-Red-Yl. Output Grid Decoupling
55	220K Ω	1/2	73049	BTS-220K	Cutter Shunt
56	15 Ω	1/2	73083	BW-1-15	Yl.-Vi.-Grn. Mic. Amp. Grid
57	4.7 Meg.	1/2	73057	BTS-4.7 Meg.	Filter
58	2000 Ω	1/2	73902	AB-2000	Br.-Grn.-Br. Bias
59	150 Ω	1/2	73081	BW-1-150	

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	PACKARD-BELL PART No.	STANCOR PART No.	THORDARSON PART No.	
60	117V AC 540V CT @ .43A	5.0V AC @ .056A	5.9V AC @ 1.8A	5.9V AC @ 2.0A	89010	P-6119*	T22R01	*Add resistor to reduce voltage to normal.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.		PACKARD-BELL PART No.	STANCOR PART No.	THORDARSON PART No.	
	PRI.	SEC.	PRI.	SEC.				
61	7100 Ω	4.1 Ω	770 Ω	.7 Ω	89409	A-38781	T22S471	Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	PACKARD-BELL PART No.	JENSEN PART No.	
62	PH	4.1 Ω	83703	ST-119 Mod. P10-T	
63	CONE DIA. 9"	VC DIA. 1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	PACKARD-BELL PART No.	MEISSNER PART No.
64	Loop Ant.			92194	
65	Ant. Coil			29400A	
66	RF Coil	62 Ω	4 Ω	281Q2B	
67	Osc. Coil	1 Ω	6 Ω	29205B	
68	Input IF	17 Ω	16.5 Ω	29004D	16-6658
69	Output IF	21 Ω		29007	16-6670

PARTS LIST AND DESCRIPTIONS (Continued)

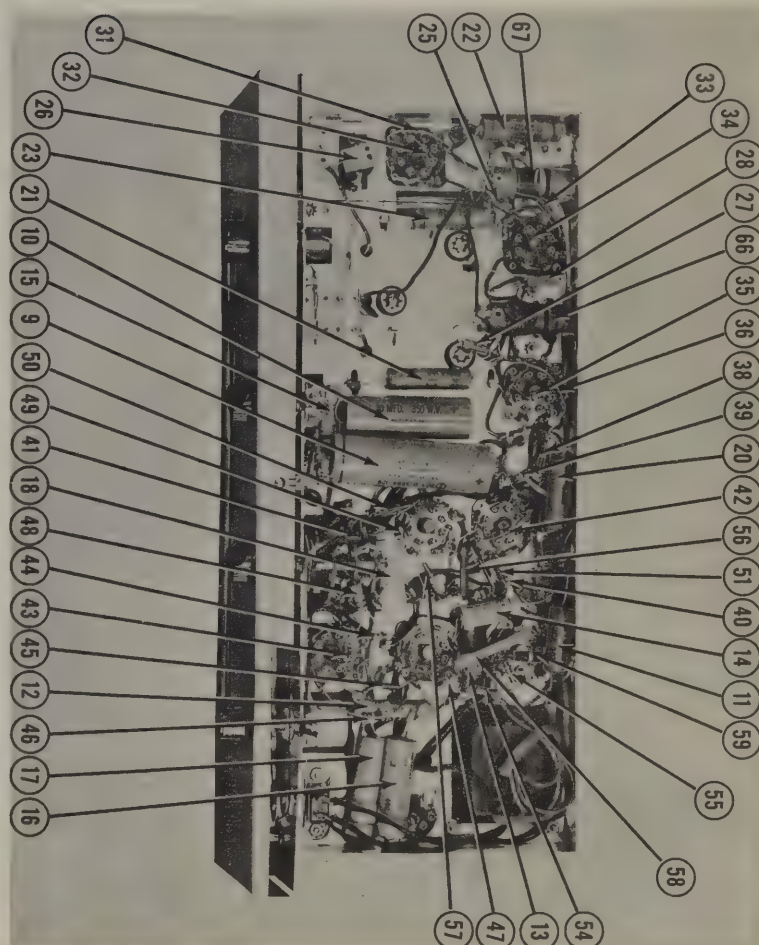
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA	INSTALLATION NOTES
					PACKARD-BELL PART No.	
70	Bayonet	6-8	0.25	Blue	54001	Type 44
71	"	"	"	"	"	"

MISCELLANEOUS

ITEM No.	PART NAME	PACKARD-BELL PART No.	NOTES
72	Function Switch	86009A	Rotary-3 Wafer
73	Tuning Cap.	23500C	(12-465 MMF) each section
A5	Micro Switch	88802	Cutter Stop
A6	Trimmer Cap.	23406	Osc. Trimmer
A7	Trimmer Cap.	23402	Osc. Padder
A8	Trimmer Strip	23001	RF Adj.
	Dial Glass	38038	Ant. Adj.
	Microphone	57004	
	Record Changer	58004D	

CHASSIS—BOTTOM VIEW



DISASSEMBLY INSTRUCTIONS

1. Remove two screws holding metal shield back of receiver chassis. Remove panel.
2. Remove four screws holding rear center panel board. Remove panel board.
3. Remove nuts from chassis mounting bolts.
4. Remove phono-motor plug from chassis.
5. Remove phono-pickup plug from chassis.
6. Remove phono-recorder plug from chassis.
7. Remove mike plug from chassis.
8. Remove speaker plug from chassis.
9. Remove loop antenna plug from chassis.
10. Remove chassis from cabinet.
11. Remove four screws holding speaker. Remove speaker.

HOW TO CHECK COMPRESSION VOLTAGE

Turn the Selector Switch to Radio Record position. Feed a 1 volt (RMS) 1000 cycle signal into the diode return of the 2nd IF (brown lead). Connect the leads of a vacuum tube voltmeter to the point indicated on schematic diagram and ground. The voltage at this point should be approximately a minus 2.25 volts.

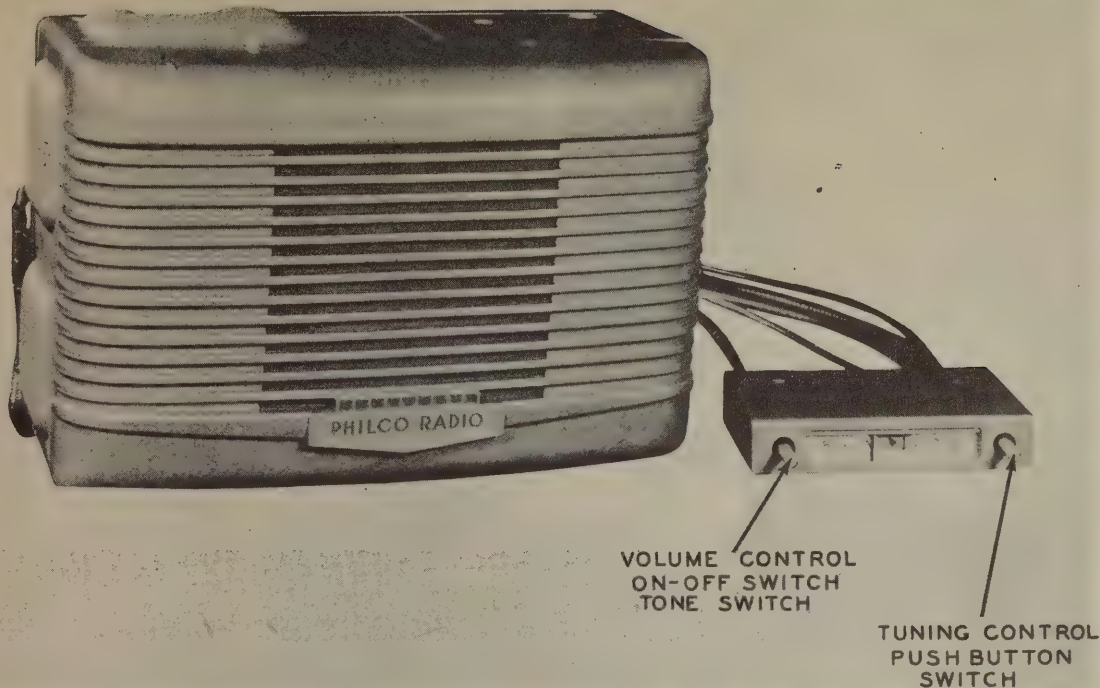
BRIEF DESCRIPTION OF COMPRESSION CIRCUIT

One diode section of the 6H6 serves as the compressor rectifier. The other diode section functions as the 2nd Detector. The compression system is automatic, and is in the circuit on both record positions. A portion of the output voltage is rectified by the 6H6 and varies grid bias of the first audio, 6SF7.

RECORDING HEAD PRESSURE

The proper recording head pressure is 1 1/2 Oz. Adjustment of this pressure is made by turning the small screw on the top of the recording arm. This adjustment is very critical and should be made in quarter turns. TURN THE SCREW CLOCKWISE TO INCREASE THE CUTTING DEPTH AND COUNTER-CLOCKWISE TO DECREASE THE CUTTING DEPTH.

This adjustment is made at the factory with an ordinary postal scale, consequently, field adjustments should be made in like manner.



PHILCO MODEL UN6-500

PHILCO
MODEL UN 6-500

TRADE NAME Philco, Model UN6-500
 MANUFACTURER Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
 TYPE SET Battery Operated Universal Automobile Receiver with Automatic Pushbutton Tuning
 TUBES (SIX) Types, 7A7 RF Amp., 7B8 Converter, 7A7 IF Amp., 7B6 Det.-AVC-AF, 7C5 Power Output, 7Y4 Rectifier.

POWER SUPPLY 6 Volt Storage Battery

TUNING RANGE—BROADCAST 550-1580 KC

RATING

6.9 Amp. @ 6.3 Volts DC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control at maximum position, output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting. After receiver is re-installed in car, set the dial pointer to coincide with the index dot at the low frequency end of the dial. Tune in weak station near 1400KC and adjust A7 for maximum volume.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to ant receptacle. Low side to chassis.	455KC	Tuning cap closed.	Across voice coil	A1, A2, A3, A4.	Tighten A5 completely. Short rear stator of tuning cap. to chassis. Turn band switch to dial position. Loosen the screw directly below the escutcheon plate that conceals the pushbutton set up adjustments. When this is loosened about $\frac{1}{2}$ " the band switch is locked in the dial position. Adjust A1-A4 for maximum output, then repeat until no further increase in output is obtained.
.05 MFD	"	"	"	"	A5	Adjust for minimum output. Remove short from rear stator of tuning cap.
30MMFD.	"	1580KC	Tuning cap. fully open.	"	A6	Adjust for maximum output.
30MMFD.	"	1400KC	Tune for maximum output.	"	A7	" " " "
30MMFD.	"	580KC	"	"	A8	Rock tuning cap and adjust for maximum output. Repeat last three steps.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
1	RF Amp. Converter	7A7	7A7	8V	
2	IF Amp.	7B8	7B8	8X	
3	IF Amp.	7A7	7A7	8V	
4	Det.-AVC-AF	7B6	7B6	8W	
5	Power Output	7C5	7C5	6AA	
6	Rectifier	7Y4	7Y4	5AB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBIER PART No.	MALLORY PART No.	SOLAR PART No.
7A	10 CAP.	61-0089	AF32K4A	UP6CJ17	FP238	DY-310
B	15					
C	350					
8	25					
9	.003	61-0115		MD16D3	OW342	TM-16-003
10	.5	60-0137	484-5	DP4P5	TP431	TC-5
11	.5	60-0137	484-5	DP4P5	TP431	TC-5
12	.07	61-0152	484-075	DP4S6	TP452	TC-16
13	.015	61-0120	1084-015	DP6S1	TP463	TC-11
14	.01	61-0120	684-01	DP6S1	TP410	TC-11
15	.01	61-0120	684-01	DP6S1	TP410	TC-11
16	.006	45-3500-7	484-006	DP6D6	TP409	TC-26
17	.25	45-3500-9	484-1	DP4P1	TP428	TC-2
18	.25	45-3500-9	484-1	DP4P1	TP428	TC-2
19	.05	61-0122	484-05	DP4S5	TP426	TC-15
20	.05	61-0122	484-05	DP4S5	TP426	TC-15
21	.05	61-0122	484-05	DP4S5	TP426	TC-15
22	.05	61-0122	484-05	DP4S5	TP426	TC-15
23	.01	61-0120	684-01	DP6S1	TP410	TC-11
24	250	6010245307	1488-0025	SW5T25	MC240	MO-5-325
25	250	6010245307	1488-0025	SW5T25	MC240	MO-5-325
26	250	6010245307	1488-0025	SW5T25	MC240	MO-5-325
27	250	6010245307	1488-0025	SW5T25	MC240	MO-5-325
28	485	50080-1220-23				
29	15	500800155407				
30	250	5008010305307				
31	250	5008010245307	1488-00025	SW5T25	MC240	MO-5-325

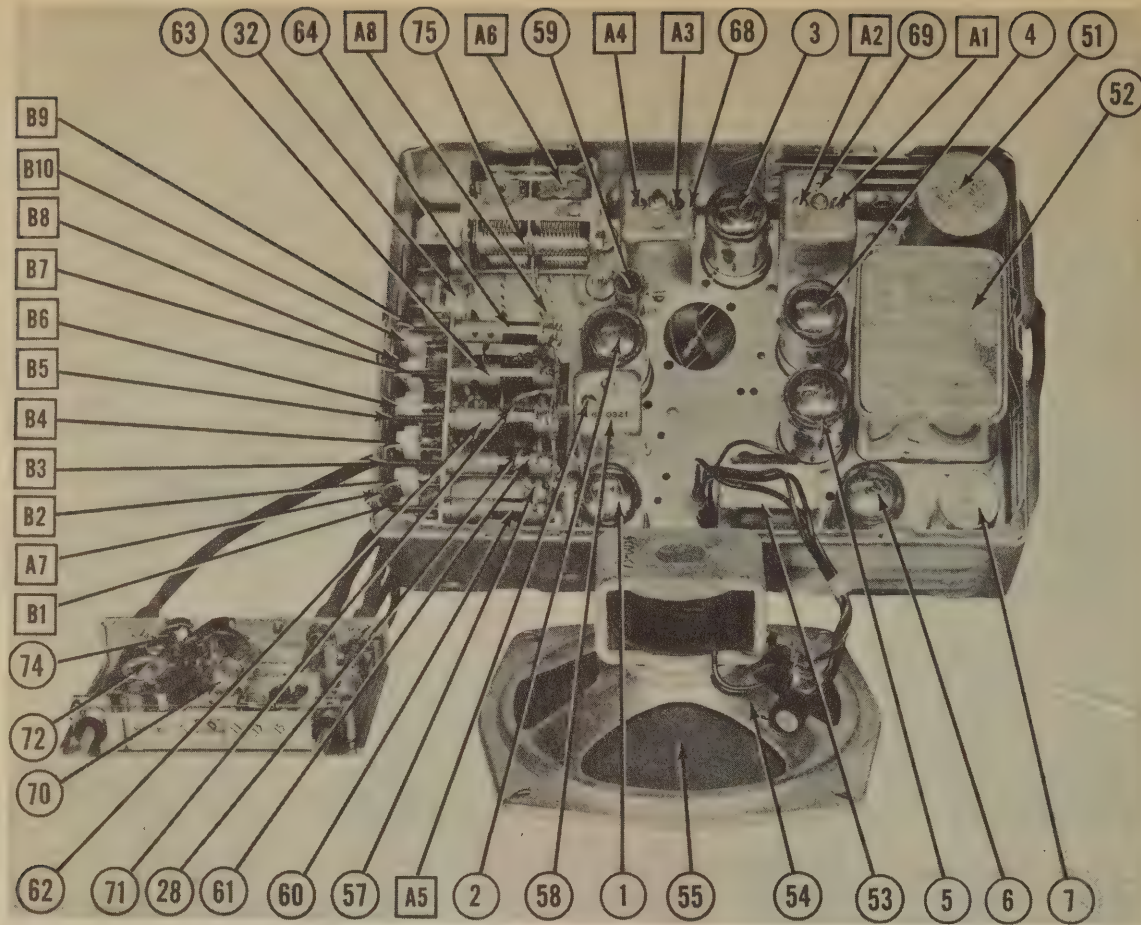
*Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		PHILCO PART No.	MALLORY PART No.	CLAROSTAT PART No.	
32	350K2 1	67-0043			Volume Control

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		PHILCO PART No.	IRC PART No.	
33	820Ω		BTS-820	Gray-Red-Br. RF Cathode
34	10KΩ		BTS-10K	Br.-Blk.-Or. RF Plate Load
35	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
36	180Ω		BW-180	Br.-Gray-Br. Converter Cathode

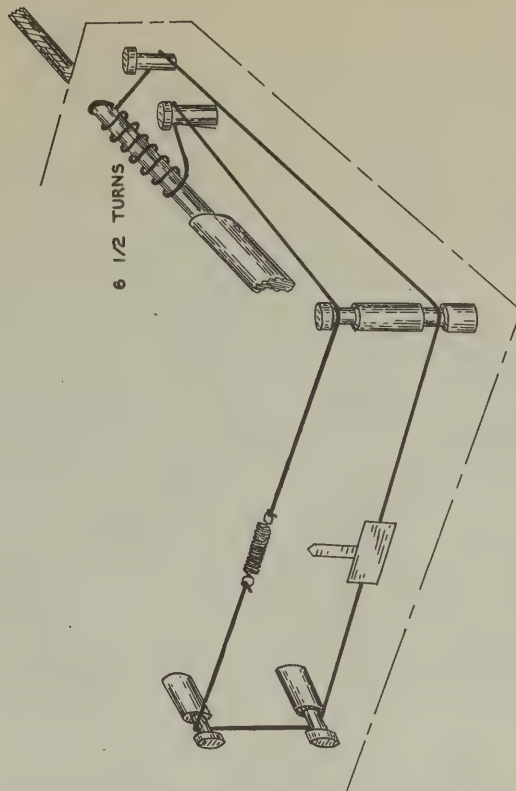


PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
37	68K Ω	1/2	66-3683340	BTS-88K	Blue-Gray-Or., Converter Screen Dropping
38	100K Ω	1/2	66-4103340	BTS-100K	Br.-Blk.-Vi., Oscillator Grid
39	470 Ω	1/2	66-4103340	BTS-470	Vi.-Vi.-Br., IF Cathode-See Note 1
40	15 Meg.	1/2	66-6153340	BTS-15 Meg.	Br.-Grn.-Grn., AF Grid
41	330 Ω	1/2	66-1333340	BW-1-330	Or.-Or.-Br., AF Cathode
42	220K Ω	1/2	66-4223340	BTS-220K	Red-Red-Vi., AF Plate Load
43	470K Ω	1/2	66-4473340	BTS-470K	Vi.-Vi.-Vi., Output Grid
44	220 Ω	1/2	66-1223340	BW-1-220	Red-Red-Br., Output Cathode
45	1500 Ω	1/2	66-2153340	BTS-1500	Br.-Grn.-Red Feedback

CHASSIS—BOTTOM VIEW



DIAL CORD DRIVE

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	OV ϕ	185VDC	90VDC	OV ϕ	OV ϕ	OV ϕ	4.4VDC	5.6VDC
2	7B8	OV ϕ	175VDC	75VDC	53VDC	90VDC	OV ϕ	2.1VDC	5.6VDC
3	7A7	OV ϕ	175VDC	90VDC	OV ϕ	OV ϕ	OV ϕ	4.4VDC	5.6VDC
4	7B6	OV ϕ	100VDC	1VDC	OV ϕ	2.1VDC	1VDC	1VDC	5.6VDC
5	7C5	OV ϕ	232VDC	220VDC	OV ϕ	OV ϕ	OV ϕ	8.2VDC	5.6VDC
6	7Y4	OV ϕ	OV ϕ	232VAC	OV ϕ	OV ϕ	240VAC	240VDC	5.6VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0 Ω	150K Ω	160K Ω	0 Ω	0 Ω	1.2 MEG	700 Ω	1 Ω
2	7B8	0 Ω	140K Ω	230K Ω	85K Ω	160K Ω	2.5 MEG	150 Ω	1 Ω
3	7A7	0 Ω	140K Ω	160K Ω	0 Ω	0 Ω	15 Ω	700 Ω	1 Ω
4	7B6	0 Ω	420K Ω	15 MEG	350 Ω	380K Ω	380K Ω	350 Ω	1 Ω
5	7C5	0 Ω	140K Ω	140K Ω	INF ϕ	INF ϕ	440K Ω	20C Ω	1 Ω
6	7Y4	0 Ω	INF ϕ	450 Ω	INF ϕ	INF ϕ	500 Ω	140K Ω	1 Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- 1 - DC Voltages measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Battery voltage maintained at 6.3 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	7A7	7A7	8V	
2	Converter	7B8	7B8	8V	
3	IF Amp.	7A7	7A7	8V	
4	Det.-AVC-AF	7B6	7B6	8W	
5	Power Output	7C5	7C5	6AA	
6	Rectifier	7Y4	7Y4	5AB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	
7A	10 CAP.	61-0089	AF32K4A	UP6CJ17	FP328	DY-310	EL-153
7B	15						
7C	20						
8	.003	61-0115	484-5	MD16D3	OM342	TM-16-003	TR-23
9	.5	60-0137	484-5	DT4P5	TP431	S-4-5	TC-5
10	.5	60-0137	484-5	DT4P5	TP431	S-4-5	TC-5
11	.07	60-0152	484-075	DT4S6	TP452	TM-6-06	TC-16
12	.015	61-0120	1084-015	DT6S1	TP463	TM-6-01	TC-11
13	.01	60-0120	684-01	DT6S1	TP410	TM-6-01	TC-11
14	.01	60-0120	684-01	DT6S1	TP410	TM-6-01	TC-11
15	.006	45-3500-7	484-006	DT4P3	TP409	TM-6-006	TC-26
16	.1	60-0113	484-1	DT4P3	TP428	TM-6-25	TC-1
17	.25	45-3500-9	484-25	DT4P25	TP430	TM-6-25	TC-2
18	.05	61-0122	484-05	DT4S6	TP426	TM-6-05	TC-15
19	.05	61-0122	484-05	DT4S6	TP426	TM-6-05	TC-15
20	.05	61-0122	484-05	DT4S6	TP426	TM-6-05	TC-15
21	.05	61-0122	484-05	DT4S6	TP426	TM-6-05	TC-15
22	.05	61-0122	484-05	DT4S6	TP426	TM-6-05	TC-15
23	.01	60-0120	684-01	DT6S1	TP410	TM-6-01	TC-11
24	250	6010245307	1468-00025	SW5T25	MC240	NO.5-325	IFM-325
25	250	6010245307	1468-00025	SW5T25	MC240	NO.5-325	IFM-325
26	250	6010245307	1468-00025	SW5T25	MC240	NO.5-325	IFM-325
27	250	6010245307	1468-00025	SW5T25	MC240	NO.5-325	IFM-325
28	485	30-1220-23					Osc. Feedback
29	15	6000155407					Fixed Trimmer PB
30	250	6010305307					Fixed Padder
31	250	6010245307	1468-00025	SW5T25	MC240	NO.5-325	IFM-325

*Not used in all models.

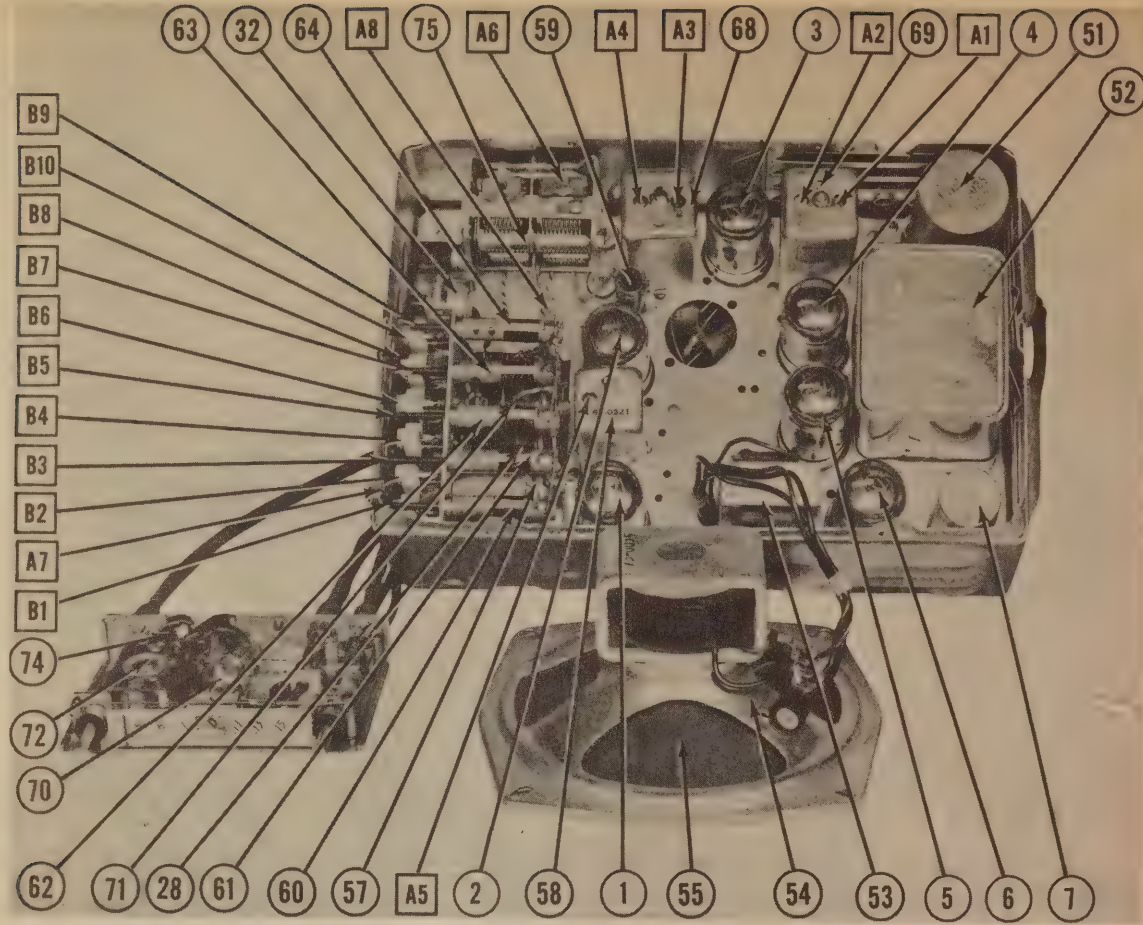
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		PHILCO PART No.	MALLORY PART No.	CLAROSTAT PART No.	
32	350KΩ	1	67-0043		Volume Control

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		PHILCO PART No.	MALLORY PART No.	IRC PART No.	
33	820Ω	66-182340	BTS-10K		Gray-Red-Bk. RF Cathode
34	10KΩ	66-3103340	BTS-10K		Br.-Blk.-Or. RF Plate Load
35	1 Meg.	66-5103340	BTS-1 Meg.		Br.-Blk.-Gri. AVC Network
36	180Ω	66-1183340	BN-180		Br.-Gray-Bk. Converter Cathode

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
37	68K Ω	1/2	66-3683340	BTS-68K	Blue-Gray-Or. Converter Screen Dropping
38	100K Ω	1/2	66-4103340	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
39	470 Ω	1/2		BTS-470	Yl.-Vl.-Br. IF Cathode-See Note 1
40	15 Meg.	1/2	66-6153340	BTS-15 Meg.	Br.-Grn.-Grn. AF Grid
41	330 Ω	1/2	66-1333340	BW-330	Or.-Or.-Br. AF Cathode
42	220K Ω	1/2	66-4223340	BTS-220K	Red-Red-Yl. AF Plate Load
43	470K Ω	1/2	66-4473340	BTS-470K	Yl.-Vl.-Yl. Output Grid
44	220 Ω	1	66-1224340	BW-1-220	Red-Red-Br. Output Cathode
45	1500 Ω	1/2	66-2153340	BTS-1500	Br.-Grn.-Red Feedback
46	4700 Ω	1/2	66-2473340	BTS-4700	Yl.-Vl.-Red Decoupling
47	22K Ω	1	66-3224340	BTA-22K	Red-Red-Or. Screen Dropping
48	1000 Ω	1	66-2104340	BTA-1000	Br.-Blk.-Red Filter
49	220 Ω	1/2	66-1223340	BTS-2200	Red-Red-Br. Hash Suppression
50	150 Ω	1/2	66-1153340	BW-1-150	Br.-Grn.-Br. "

Note 1 - Some models use 180 Ω in this application.

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				PHILCO PART No.	MALLORY PART No.	RADIART PART No.	
51A	Interrupter	6.3	115 \pm	83-0025	859	5326P	Alternate Vibrator
B				83-0026	859	5326P	

TRANSFORMER (VIBRATOR)

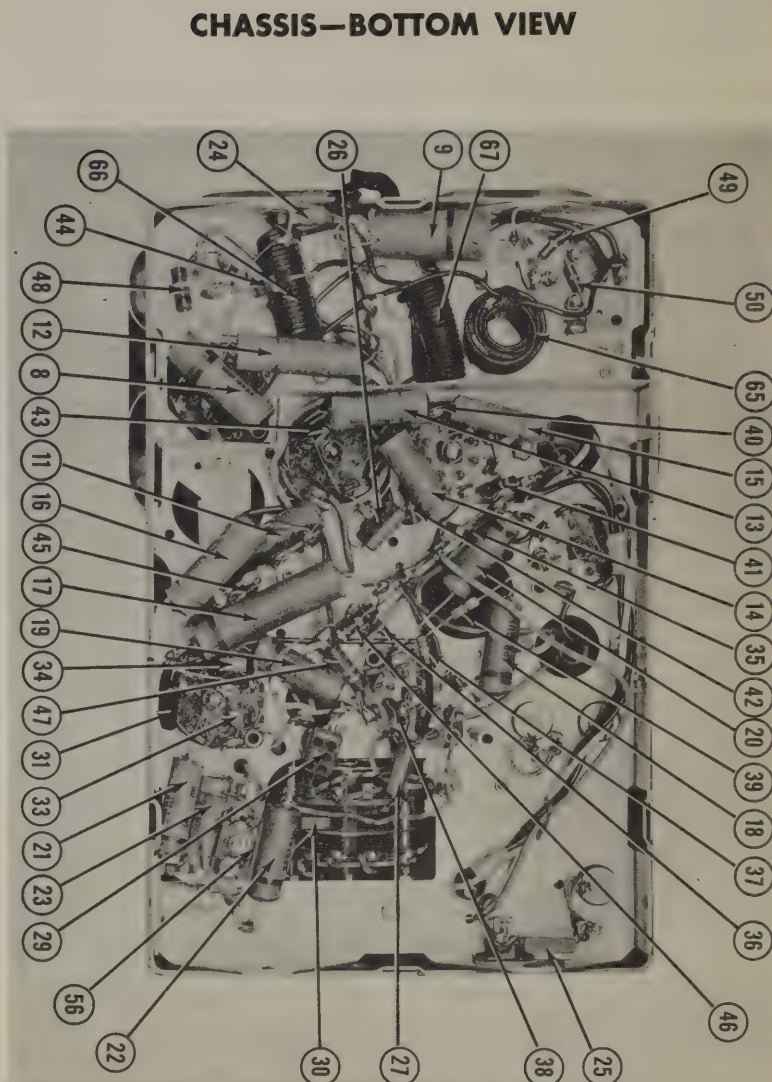
ITEM No.	RATING				REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	SEC. 3	PHILCO PART No.	STANCOR PART No.	THORDARSON PART No.
52	5.3V DC @ 3.7A	480V CT @ .053A			65-0234		

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI.	SEC.	PHILCO PART No.	STANCOR PART No.	THORDARSON PART No.	
53	5500 Ω	3.3 Ω	380 Ω	.42	65-0419	A-3877	T22846	† Drill mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.	
54A	FIELD RES.	VC IMP.	73-0059 73-0006		Alternate Speaker
B	4.4 Ω	3.3 Ω			
55	CONE DIA.	VC DIA.	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		
	6-1/8"	1/2"			



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.
56	Ant. Choke		.5 Ω	65-0168	
57	Ant. Coil		1.5 Ω	65-0323	
58	RF Transformer			65-0321	14-1040
59	Osc. Coil	8 Ω		65-0420	
60	FB Osc. Coil	5 Ω		65-0169	
61	" " " 2	5.5 Ω		65-0170	
62	" " " 3	6.5 Ω		65-0171	
63	" " " 4	6.5 Ω		65-0172	
64	" " " 5	6.5 Ω		65-0173	
65	RF Choke	0 Ω		65-0037	
66	" " "	0 Ω		65-0433	
67	" " "	0 Ω		65-0452	
68	Input IF	162	112	65-0319	16-6658
69	Output IF	222		65-0320	16-6670

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PHILCO PART No.		
70	Bayonet	6-8	0.40	White	34-2039		Type 55

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
71	Selector Switch	76-2432	Located in Control Head
72	Tone Switch	77-0733	
73	Fuse	45-2539	
74	On-Off Switch	85-0112	Located in Control Head (17-419MMF) each section
75	2 Gang Var. Cap.	63-0077	
	Pushbutton		Complete Trimmer Assembly
	Trimmers	77-0512	
A8	Trimmer	63-0048	
	Dial	65-1194	
	Pointer	67-1899	Osc. Padder

CHASSIS—BOTTOM VIEW

PUSHBUTTON ADJUSTMENTS

Pushbuttons should be set up after receiver has been mounted in the car. In case they are set up before installation a final adjustment should be made with receiver in the car.

Make a list of five stations ranging from high frequency to low frequency stations making certain that each station falls within the range of the buttons to be set up.

The frequency ranges of the buttons reading from top to bottom are 855-1580KC, 750-1410KC, 660-1240KC, 600-1165KC, 550-1065KC.

1. Turn receiver on and allow it to warm up for about fifteen minutes. Remove plate covering pushbutton adjustments.

2. Set band switch to "D" position and tune in 1st station.

3. Set band switch to "1" position and adjust B1 to tune in 1st station.

4. Adjust B₂ for maximum volume.

5. To set up the remaining buttons follow the same procedure as outlined above, setting bandswitch to the button to be set-up and adjusting B3, B5, B7 and B9 to tune in stations and B4, B6, B8 and B10 for maximum volume.

6. Repeat adjustments for optimum performance.

VOLTAGE READINGS

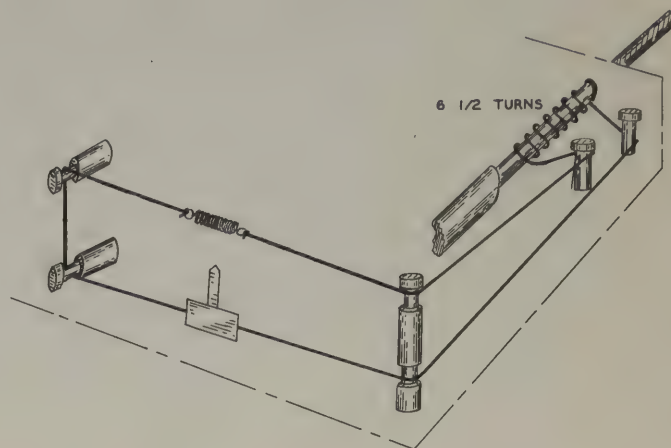
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0V _s	185V _{DC}	90V _{DC}	0V _s	0V _s	0V _s	4.4V _{DC}	5.6V _{DC}
2	7B8	0V _s	175V _{DC}	75V _{DC}	5.3V _{DC}	90V _{DC}	0V _s	2.1V _{DC}	5.6V _{DC}
3	7A7	0V _s	175V _{DC}	90V _{DC}	0V _s	0V _s	0V _s	4.4V _{DC}	5.6V _{DC}
4	7B6	0V _s	100V _{DC}	1V _{DC}	0V _s	1V _{DC}	1V _{DC}	1V _{DC}	5.6V _{DC}
5	7C5	0V _s	232V _{DC}	220V _{DC}	0V _s	0V _s	0V _s	8.2V _{DC}	5.6V _{DC}
6	7Y4	0V _s	0V _s	232V _{AC}	0V _s	0V _s	240V _{AC}	240V _{DC}	5.6V _{DC}

RESISTANCE READINGS

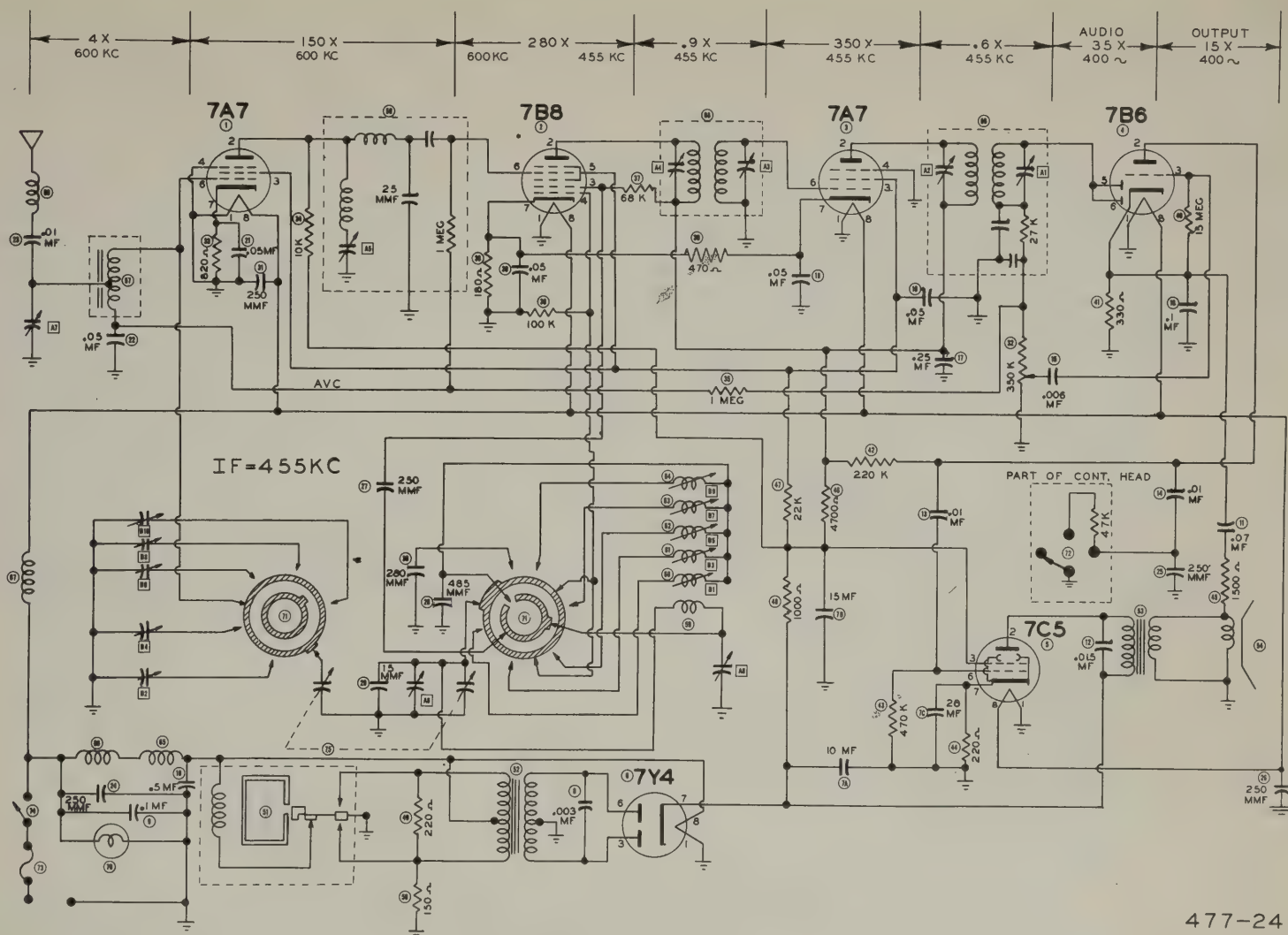
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0 Ω	150K Ω	160K Ω	0 Ω	0 Ω	1.2 MEG	700 Ω	1 Ω
2	7B8	0 Ω	140K Ω	230K Ω	85K Ω	160K Ω	2.5 MEG	150 Ω	1 Ω
3	7A7	0 Ω	140K Ω	160K Ω	0 Ω	0 Ω	15 Ω	700 Ω	1 Ω
4	7B6	0 Ω	420K Ω	15 MEG	350 Ω	360K Ω	380K Ω	350 Ω	1 Ω
5	7C5	0 Ω	140K Ω	140K Ω	1NF Ω	1NF Ω	440K Ω	20C Ω	1 Ω
6	7Y4	0 Ω	1NF Ω	450 Ω	1NF Ω	1NF Ω	500 Ω	140K Ω	1 Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- 1 - DC Voltages measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Battery voltage maintained at 6.3 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		RCA PART No.	JENSEN PART No.	
26	FIELD PM VC IMP. 120 CONE DIA. VC DIA. 1-3/4" x 7/16"	70428		Original Part No. 92523-34
27	2-1/2"			
NOT READILY REPLACABLE - USE COMPLETE SPEAKER UNIT.				

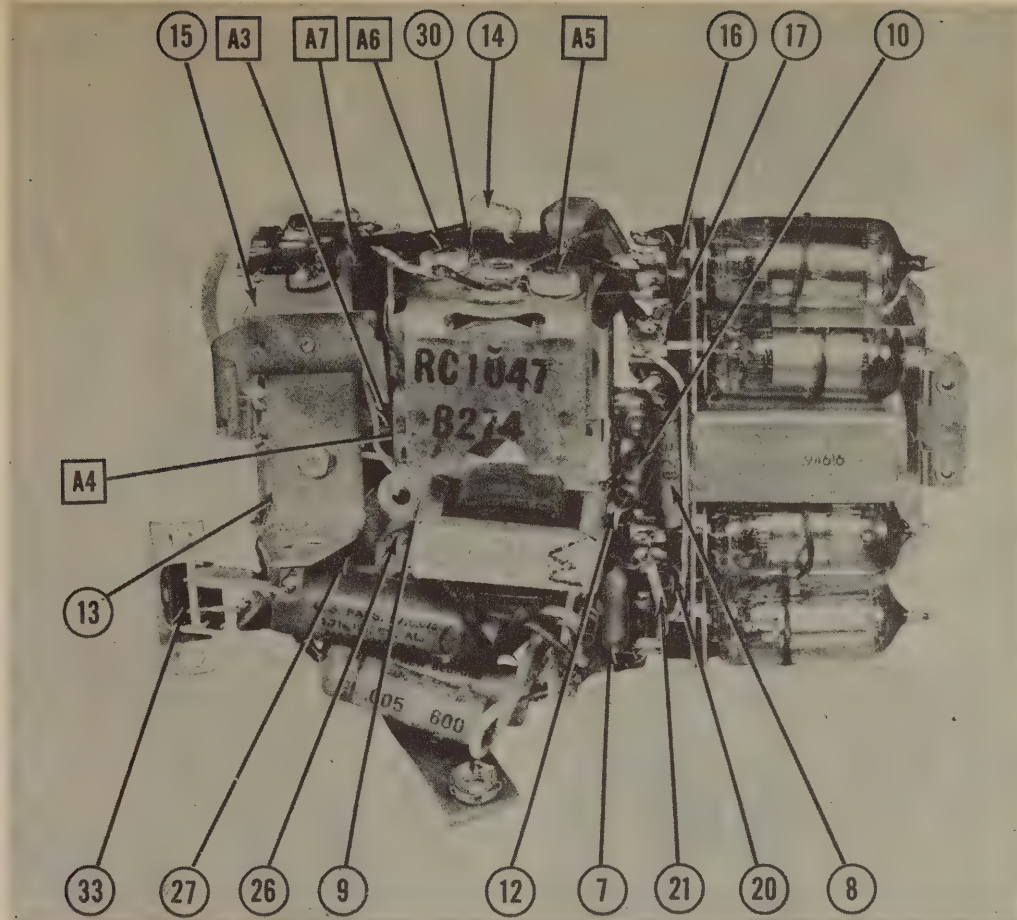
R F COILS

ITEM No.	USE	REPLACEMENT DATA		
		DC RES.	RCA PART No.	MEISSNER PART No.
28	Loop Ant.	PRI.	72244	
29	Loop Loading	SEC.		
30	Sec. Coil	20Ω	72215	
31	Input IF	40Ω	70443	
32	Output IF	20Ω	70442	
		39Ω	70437	

MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
33	On-Off Switch	72231	DPST (25-314MMF), (22-141MMF)
34	2 Gang Var. Cap	72227	
	"A" Battery	VS036 or VS001	Eveready Type 950
	"B" Battery	VS016	Eveready Type 467

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		RCA PART No.	STANDARD REPLACEMENT	BMA BASE TYPE	
1	Converter	1R5	1R5	7AT	
2	If Amp.	174	174	6AR	
3	Det.-AVC-AF	185	185	6AU	
4	Power Output	394	394	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		RCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
5	10 CAP. 60	36718	PR8150-12	BR1215	TC42	Pwr. Supp. Bypass
6	6 .005	70627	684-005	TP409	M-10-150	Output Plate Bypass
7	8 .002	72315		ZY4D2	S-6-005	Audio Coupling
8	7 .02	70453		TY107	TF-1.5-02	Audio Screen Bypass
9	9 .002	72315		ZY4D2	TF-1.5-02	Audio Coupling
10	10 .02	70453		TY107	TF-1.5-02	Screen Bypass
11	11 .05	71013	484-05	D7485	S-4-05	AVC Filter
12	82	71514		TP426		Diode Filter Cer.
13	33	33111				Osc. Grid Capacitor Cer.
14	56	71924				

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		RCA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
15	2 Meg. 1	72228				Volume Control K98539-2

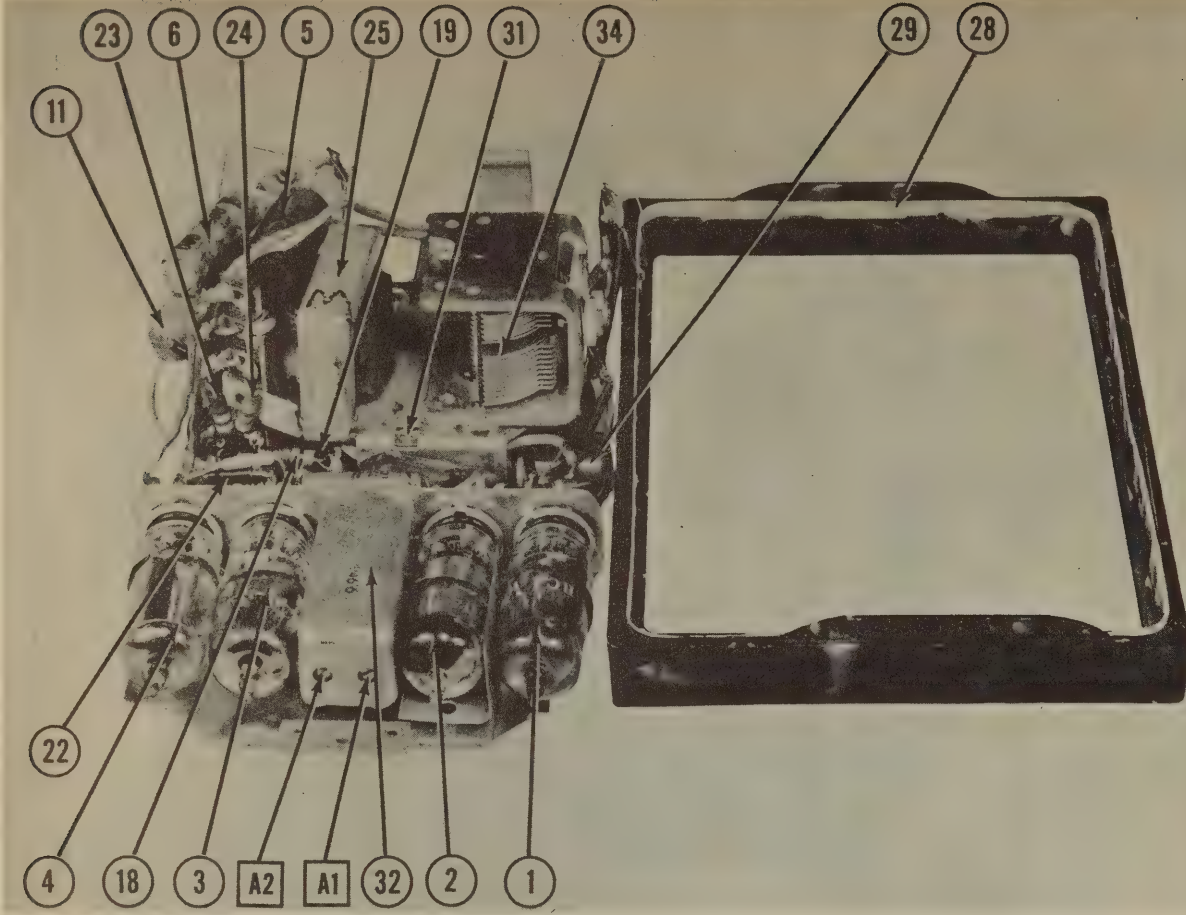
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		RCA PART No.	IRC PART No.		
16	100KΩ	3252	BTS-100K		Br.-Blk.-Yl. Oscillator Grid
17	15KΩ	36714	BTS-15K		Br.-Grn.-Or. Screen Dropping
18	3.3 Meg.	31417	BTS-3.3 Meg.		Or.-Or.-Grn. AVC Network
19	68KΩ	14138	BTS-68K		Blue-Gray-Or. Diode RF Filter
20	10 Meg.	30992	BTS-10 Meg.		Br.-Blk.-Blue AF Grid
21	4.7 Meg.	30931	BTS-4.7 Meg.		Yl.-Vi.-Grn. AF Screen Dropping
22	1 Meg.	30652	BTS-1 Meg.		Br.-Blk.-Grn. AF Plate Load
23	3.3 Meg.	31417	BTS-3.3 Meg.		Or.-Or.-Grn. Output Grid
24	820Ω	14076	BTS-820		Gray-Red-Br. Bias

TRANSFORMER (OUTPUT)

ITEM No.	IMPEDANCE	RATING		REPLACEMENT DATA		INSTALLATION NOTES
		PRI. SEC.	DC RES.	RCA PART No.	STANCOR THORDARN PART No.	
25	6700Ω 12Ω	600Ω	2.7Ω	70440	T22S46*	*Bend one flange down and solder to chassis. Original Part. 94186-504

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		RCA PART No.	JENSEN PART No.	
26	FIELD PM VC IMP. 12Ω	70428		Original Part No. 92523-3W
27	CONE DIA. 1-3/4" x 7/16"			

NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT.

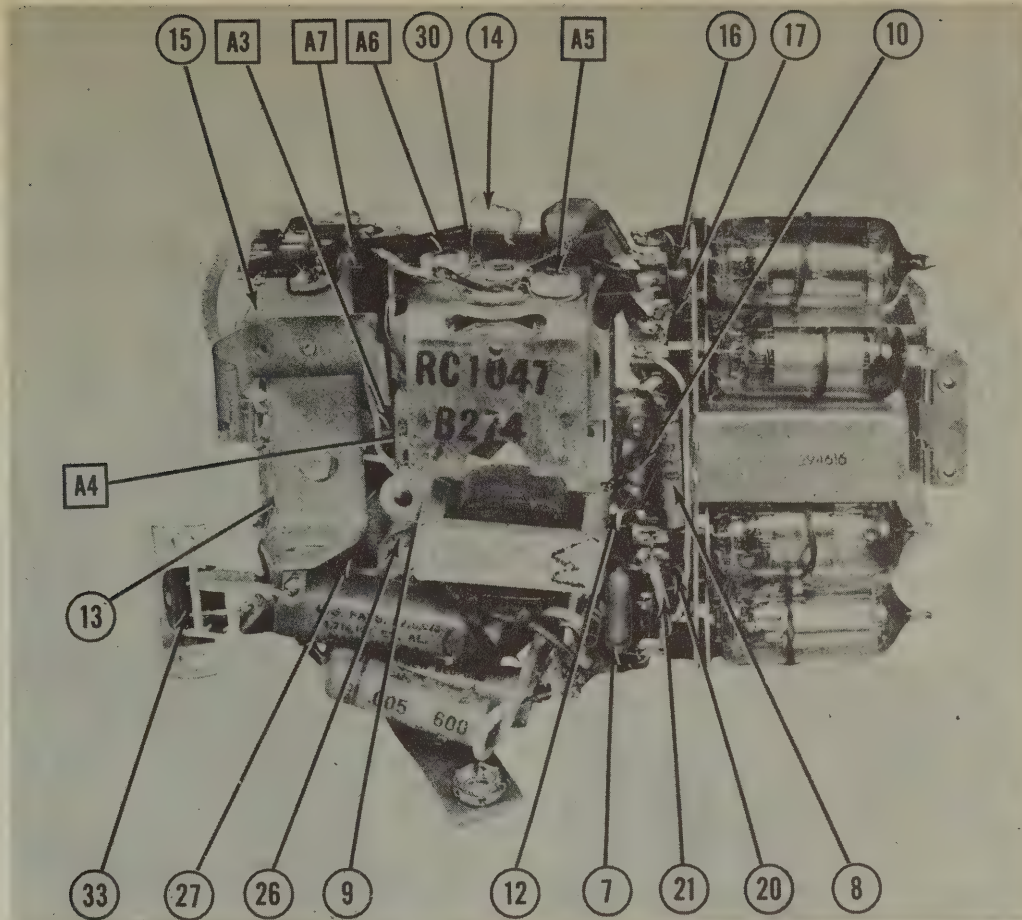
R F COILS

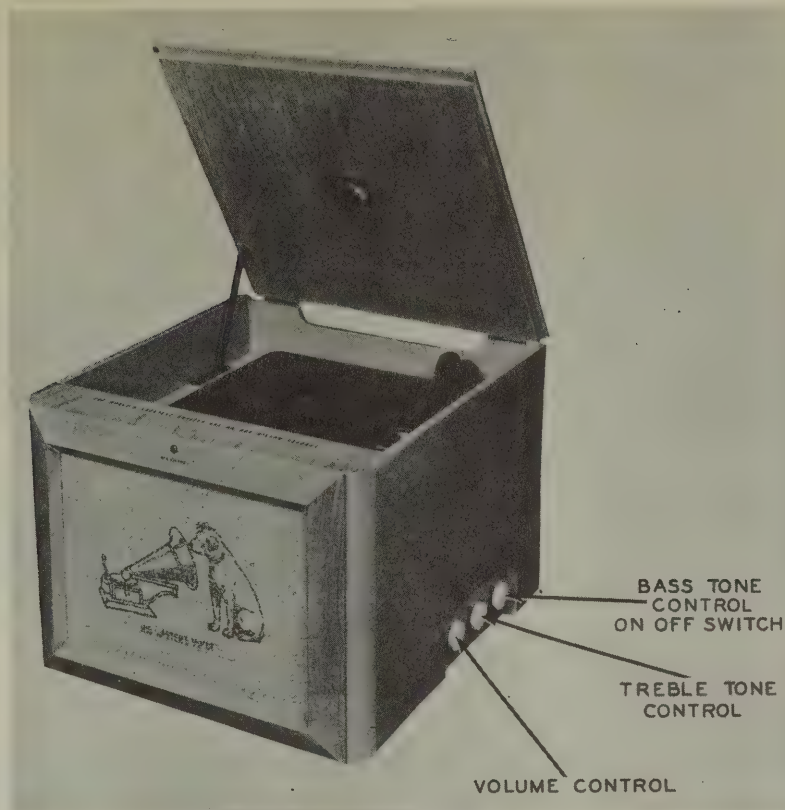
ITEM No.	USE	REPLACEMENT DATA		
		DC RES.	RCA PART No.	MEISSNER PART No.
28	Loop Ant.	PRI.	22	72244
29	Loop Loading	SEC.	29	72215
30	Dec. Coil	19	43	70443
31	Input IF	20Ω	20Ω	70442
32	Output IF	39Ω	39Ω	70437

MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
33	On-Off Switch	72231	DPST (25-314MTF), (22-141MTF)
34	2 Gang Var. Cap	72227	
	"A" Battery	VS036 or VS001	
	"B" Battery	VS016	Eveready Type 950 Eveready Type 467

CHASSIS—BOTTOM VIEW





RCA MODEL 66E

TRADE NAME	RCA, Model 66E (Ch. RS-126)		
MANUFACTURER	Radio Corp. of America, RCA Victor Div., Camden, N.J.		
TYPE SET	AC Operated Phonograph with 6 Tube Amplifier & Speaker		
TUBES (SIX)	Types, 6J5 1st AF Amp., 6SQ7 2nd AF Amp., 6SQ7 Phase Inverter, (2) 6K6GT Power Output, 5Y3GT Rectifier.		
POWER SUPPLY	105-125 Volts AC	RATING	.580 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6J5	OV.	63VAC	120VDC	OV.	OV.	207VDC	OV.	38VDC
2	6SQ7	OV.	OV.	18VDC	OV.	OV.	165VDC	63VAC	OV.
3	6SQ7	OV.	OV.	18VDC	OV.	OV.	155VDC	OV.	63VAC
4	6K6GT	OV.	OV.	352VDC	300VDC	OV.	OV.	63VAC	24VAC
5	6K6GT	OV.	OV.	352VDC	300VDC	OV.	OV.	63VAC	24VDC
6	5Y3GT/G	OV.	368VDC	OV.	315VAC	OV.	315VAC	OV.	368VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6J5	0 Ω	.1 Ω	150K Ω	112K Ω	95K Ω	112K Ω	0 Ω	1500 Ω
2	6SQ7	0 Ω	1.5MEG.	2500 Ω	0 Ω	0 Ω	370K Ω	.1 Ω	0 Ω
3	6SQ7	0 Ω	1MEG.	2500 Ω	0 Ω	0 Ω	370K Ω	.0 Ω	.9 Ω
4	6K6GT	0 Ω	0 Ω	95K Ω	95K Ω	440K Ω	7K Ω	.1 Ω	325 Ω
5	6K6GT	0 Ω	0 Ω	95K Ω	95K Ω	460K Ω	INF.	.1 Ω	325 Ω
6	5Y3GT/G	0 Ω	95K Ω	INF.	225 Ω	INF.	235 Ω	INF.	95K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt. AC Voltages measured at 1000 ohms per volt.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

RCA
MODEL 66E

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		RCA PART No.	STANDARD REPLACEMENT	BASE TYPE	
1	1st AF Amp.	6J5	6J5	6Q	
2	2nd AF Amp.	6X5	6X5	8Q	
3	Phase Inverter	6X5	6X5	8Q	
4	Power Output	6K6GT	6K6GT	7S	
5	Power Output	6K6GT	6K6GT	7S	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		RCA PART No.	AEROVOX PART No.	CORNELL-CORNUER PART No.	MALLORY PART No.	
7A	20 450	71976	AP44J	UP8UJ38	FP339	EL-330
7B	30 350		PR825-25	BR202A	FP330	EL-323
8A	20 25		AP44J	UP8UJ17		
8B	20 25		PR825-25			
8C	20 25		1084-003	MD16D3		
9	.0035 1000	70646	1084-003	MD16D3		
10	.0035 1000	70646	484-01	DT481		
11	.01 400	70610	484-01	DT481		
12	.02 400	70610	484-01	DT481		
13	.01 400	70610	484-01	DT481		
14	.0035 400	70604	484-003	DT6D3		
15	.005 600	70606	684-005	DT6D5		
16	.015 600	71135	684-015	DT6D5		
17	.01 400	70610	484-01	DT481		
18	.005 600	70606	684-005	DT6D5		
19	560 500	39646	1468-0005	5W5T5		
20	560 500		1468-0005	5W5T5		

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		RCA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
21A	1.5 Meg.	71980	DTW291		T-95	Volume Control
21B	2 Meg.	38402	MR55	D13-139	Not Req.	Attach to 21A per instructions
22A	2 Meg.	Not Req.	Not Req.	A	M-66-Z	L.F. Tone Control
22B	2 Meg.	Not Req.	Not Req.	41	Not Req.	Attach to 22A per instructions
23A	1 Meg.	38405	MR53	D13-137	SM-A	HF Tone Control
23B	1 Meg.	Not Req.	Not Req.	A	M-63-Z	Attach to 23A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		RCA PART No.	WATTS	IRC PART No.	
24	22KΩ	30492	1/2	BTS-22K	Red-Red-Or. Tone Compensation
25	100KΩ	3252	1/2	BTS-100K	Br.-Blk.-Yl. AF Grid
26	1800Ω	30930	1/2	BTS-1800	Br.-Gray-Red AF Cathode
27	15KΩ	3219	1/2	BTS-15K	Br.-Gray-Or. AF Plate Load
28	15KΩ	36714	1/2	BTS-15K	Br.-Gray-Or. AF Plate Decoupling
29	30KΩ	30147	1/2	BTS-30K	Or.-White-Or. Tone Compensation
30	22KΩ	30492	1/2	BTS-22K	Red-Red-Or. Tone Compensation
31	27KΩ	30409	1/2	BTS-27K	Red-Vi.-Or. Tone Compensation
32	2700Ω	30750	1/2	BTS-2700	Red-Vi.-Red 2nd AF Cathode
33	270KΩ	30651	1/2	BTS-270K	Red-Vi.-Yl. 2nd AF Cathode
34	270KΩ	30651	1/2	BTS-270K	Red-Vi.-Yl. Phase Inverter Plate Load
35	1 Meg.	30652	1/2	BTS-1 Meg.	Red-Vi.-Yl. Tone Compensation
36	270KΩ	30651	1/2	BTS-270K	Yl.-Vi.-Yl. Tone Compensation
37	470KΩ	30648	1/2	BTS-470K	Gray-Red-Red Output Grid
38	8200Ω	14250	1/2	BTS-8200	Yl.-Vi.-Yl. Output Grid
39	470KΩ	30648	1/2	BTS-470K	Yl.-Vi.-Yl. Output Grid
40	390Ω	72325	1/2	EM-2-390	Or.-White-Br. Output Cathode
41	5600Ω	38886	1/2	BT-2-5600	Grn.-Blue-Red Filter

PARTS LIST AND DESCRIPTIONS (Continued) TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	RCA PART No.	THORDARSON PART No.	
42	117V AC 630V CT 5.1V AC @ .58A	15.1V AC @ 1.8A	6.5V AC @ 2.5A	71975 (Orig. Part 94158-503)	P-6120*	*Mount vertically with universal mounting brackets.

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		RCA PART No.	THORDARSON PART No.	
43	15,000 Ω CT	6200	.5Ω	97604-502 (Orig. Part)	A-3623	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.		RCA PART No.	JENSEN PART No.	
44	PM 2-28			92569-1W		
45	CONF. DIA. 1-3/8"	VC DIA. 1-3/8"		NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	RCA PART No.	
46	Bayonet	6-8	0.40	White	5117	Type 55
47	"	6-8	0.40	"	"	"
48	"	7.5	0.20	"	11765	Type 51

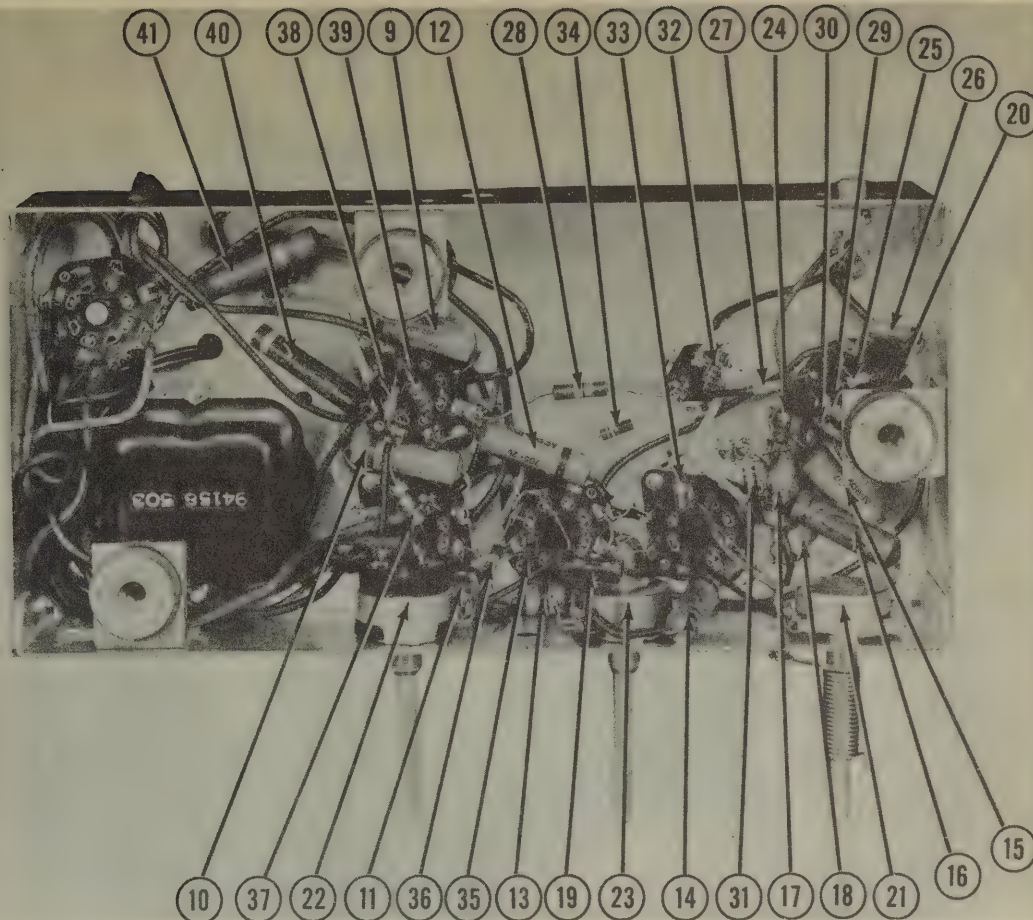
MISCELLANEOUS

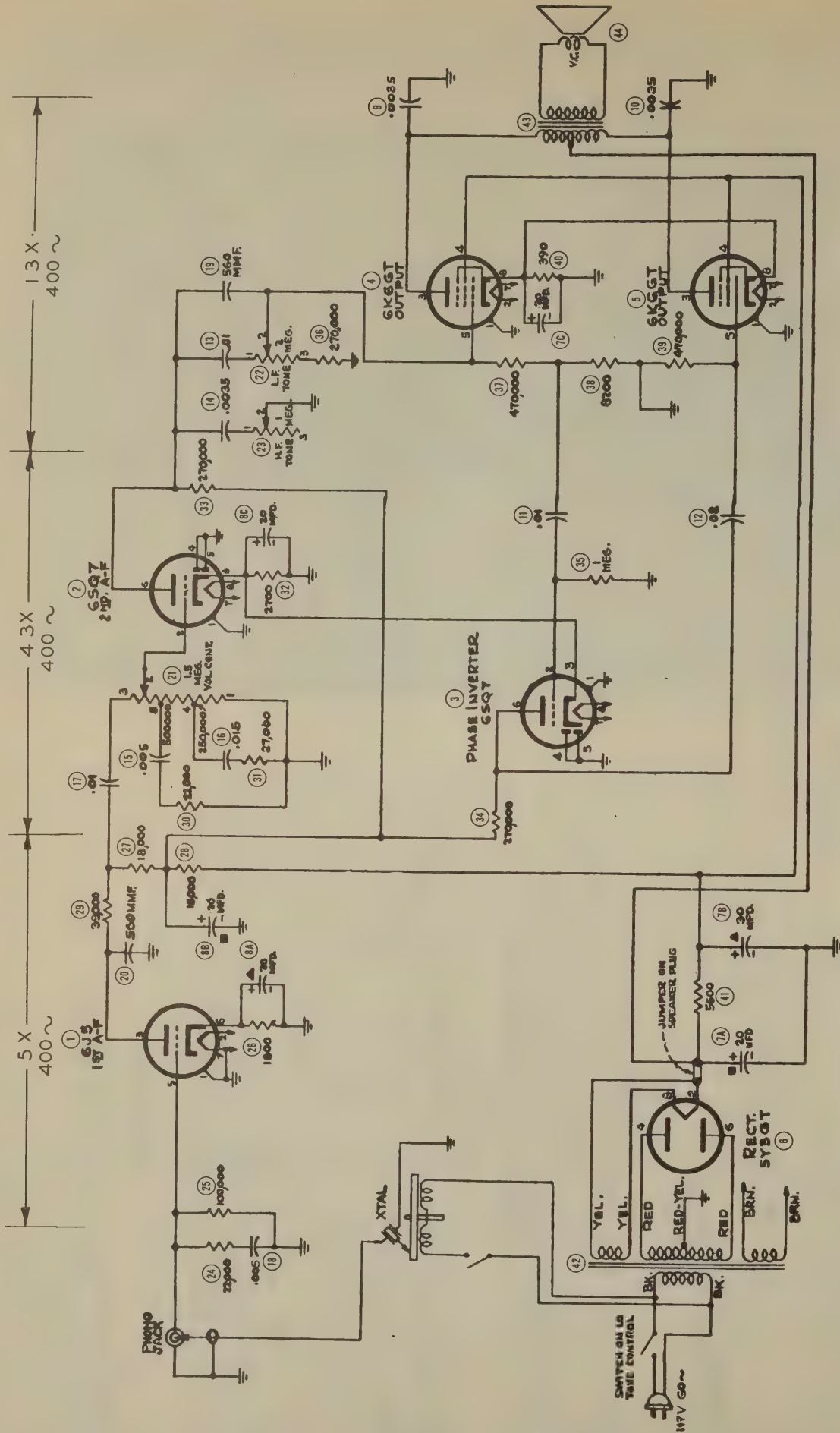
ITEM No.	PART NAME	RCA PART No.	NOTES
	Switch	72203	Motor On-Off
	Phono Motor	71960	
	Crystal	70332	
	Sapphire	39449	
	Pickup Arm	71294	Less Cartridge

DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type control knobs.
2. Remove plug button under phono compartment light.
3. Remove two screws holding phono compartment light bracket.
4. Remove light from bracket and cover for wires. Push light through hole in cabinet.
5. Remove four screws holding rear panel. Remove panel.
6. Remove phono-motor plug from chassis.
7. Remove phono-pickup plug from chassis.
8. Remove speaker plug from speaker.
9. Remove pilot light over controls from bracket.
10. Remove six screws holding panel over top rear of speaker.
11. Remove pilot light at front of cabinet from bracket.
12. Remove three chassis mounting bolts. Remove chassis.
13. Remove five wood screws holding bottom cover board under speaker. Remove board.
14. Remove three hex nuts holding speaker. Remove speaker.

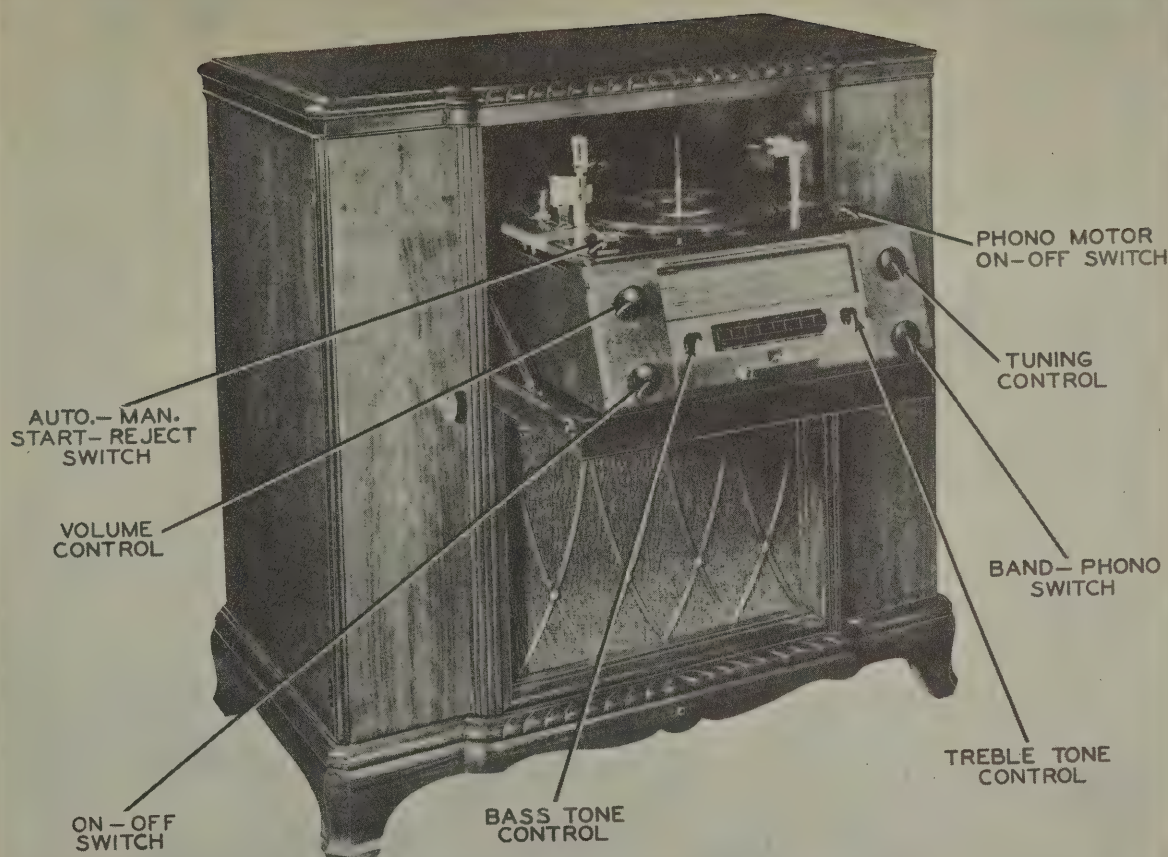
CHASSIS—BOTTOM VIEW





THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE. 477-26

RCA
MODELS 612 V1, 612 V2, 612 V3



RCA
PAGE 1
MODELS 612 V1, 612 V2, 612 V3

RCA MODEL 612V3

TRADE NAME	RCA, Models 612V1, 612V2, 612V3 (Chassis RK-121 Rcvr. & RS-123 Audio and Power Supply)
MANUFACTURER	RCA Victor Div., Radio Corporation of America, Camden, N. J.
TYPE SET	AC Operated Phono-Radio Combination FM-AM Superheterodyne with Self Contained Loop Antenna.
TUBES(TWELVE)	Types, 6BA6 RF Amp., 6BA6 Mixer, 6BE6 Oscillator, 6BA6 1st IF Amp., 6AU6 2nd IF Amp.-Phono Amp., 6AU6 Driver, 6AL5 Ratio Detector, 6AT6 AM Det.-AVC-AF, 6J5 Phase Inv., (2) 6F6G Power Output, 5U4G Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	1.2 Amp. @ 117 Volts AC
FREQUENCY RANGES:	BROADCAST 540-1600KC - SHORT WAVE 9.2-16.0MC - FREQ. MOD. 88-108MC

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		RCA PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	6BA6	6BA6	7CC	
2	Mixer	6BA6	6BA6	7CC	
3	Oscillator	6BE6	6BE6	7CH	
4	1st IF	6BA6	6BA6	7CC	
5	2nd IF Phono-Amp.	6AU6	6AU6	7BK	
6	Driver	6AU6	6AU6	7BK	
7	Ratio Detector	6AU6	6AU6	7BK	
8	AM-Det.-AVC-AF	6AL5	6AL5	6BT	
9	Phase Inverter	6AT6	6AT6	7BT	
10	Power Output	6F6G	6F6G	6Q	
11	Power Output	6F6G	6F6G	7S	
12	Rectifier	504G	504G	5T	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	RCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLOY PART No.	SOLAR PART No.		SPRAGUE PART No.
61	18								Osc. Grid Capacitor Cer.
62	100		45233	1468-0001	5W5T1	MC235	M0.5-31	1FM-31	Flament Bypass Cer.
63	100		45233	1468-0001	5W5T1	MC235	M0.5-31	1FM-31	Osc. Grid Capacitor Cer.
64	6.8		35043						Osc. Coupling Cer.
65	56		71924						RF Coupling Cer.
66	220		71920						
67	330		71919						Fixed Padder Cer.
68	5.6		71930						RF Coupling Cer.
69	220		71920						
70	100		45233	1468-0001	5W5T1	MC235	M0.5-322	1FM-31	RF Grid Filter Cer.
71	330		71919				M0.5-31	M0.5-333	Fixed Padder Cer.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		RCA PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
72A	1.5 Meg. 1 B Shaft	71596	DTW291*	D18-139XX*	T-95*	Volume Control Attach to 72A per instructions
73A	1 Meg. 1 B Shaft	39405	MR53	D13-137	M-62-Z	HF Tone Control Attach to 72A per instructions
74A	2 Meg. 1 B Shaft	39401	MR55	D13-139	M-66-Z	HF Tone Control Attach to 74A per instructions

*Use original spacer nut between chassis and front panel.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		RCA PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
75	1 Meg. 1	30652	BTS-1 Meg.	BTS-1 Meg.		Br.-Blk.-Grn. FM Antenna Loading
76	1 Meg. 1	30652	BTS-1 Meg.	BTS-1 Meg.		Br.-Blk.-Grn. RF Grid
77	22K	30492	BTS-22K	BTS-22K		Red-Red-Or. AVC Network
78	4700K	30498	BTS-4700	BTS-4700		Yl.-Vi.-Red RF Screen Dropping
79	390K	30498	BW-#-390	BW-#-390		Or.-White-Br. Mixer Cathode
80	3.9 Meg.	70592	BTS-3.9 Meg.	BTS-3.9 Meg.		Or.-White-Grn. Mixer Grid
81	2200K	34767	BTS-2200	BTS-2200		Red-Red-Red RF Coil Shunt BC
82	3K	72323	BW-#-3.3	BW-#-3.3		Or.-Blk.-Gold Series Pilot Light
83	10K	71914	BTA-10K	BTA-10K		Red-Red-Or. Oscillator Grid
84	15K	71915	BTA-15K	BTA-15K		Br.-Blk.-Or. Oscillator Screen Dropping
85	15K	71915	BTA-15K	BTA-15K		Br.-Blk.-Or. Oscillator Screen Dropping
86	270K	34767	BTS-27K	BTS-27K		Red-Red-Red Mixer Cathode
87	270K	34767	BTS-27K	BTS-27K		Red-Red-Red Mixer Cathode
88	100K	30499	BTS-100K	BTS-100K		Red-Red-Red Mixer Cathode
89	22 Meg.	31917	BTS-22 Meg.	BTS-22 Meg.		Red-Red-Red Mixer Cathode
90	22 Meg.	31917	BTS-22 Meg.	BTS-22 Meg.		Red-Red-Red Mixer Cathode
91	1 Meg.	30652	BTS-1 Meg.	BTS-1 Meg.		Br.-Blk.-Grn. AVC Network FM
92	8200K	14350	BTS-8200	BTS-8200		Gray-Red-Red Oscillator Coil Shunt
93	2.2 Meg.	30649	BTS-2.2 Meg.	BTS-2.2 Meg.		Br.-Blk.-Yl. B
94	100K	3252	BTS-100K	BTS-100K		Br.-Blk.-Yl. B
95	180K	11859	BTS-180K	BTS-180K		Br.-Gray-Yl. B
96	470K	30648	BTS-470K	BTS-470K		Yl.-Vi.-Yl. 2nd IF Bias
97	22K	30492	BTS-22K	BTS-22K		Red-Red-Or. Tone Compensation
98	22K	30492	BTS-22K	BTS-22K		Red-Red-Or. Tone Compensation
99	100K	11859	BTS-100K	BTS-100K		Br.-Gray-Yl. 1st IF Cathode
100	100K	34765	BW-#-100	BW-#-100		Br.-Blk.-Br. 1st IF Cathode
101	2200K	34767	BTS-2200	BTS-2200		Red-Red-Red 1st IF Screen Dropping
102	2200K	34767	BTS-2200	BTS-2200		Red-Red-Red 1st IF Plate Decoupling
103	22K	30651	BTS-22K	BTS-22K		Red-Red-Or. Diode RF Filter
104	15K	36714	BTS-15K	BTS-15K		Br.-Grn.-Or. 2nd IF Filter
105	18K	3219	BTS-18K	BTS-18K		Br.-Gray-Or. 2nd IF Screen Dropping
106	22K	30492	BTS-22K	BTS-22K		Red-Red-Red 2nd IF Screen Dropping
107	2200K	34767	BTS-2200	BTS-2200		Red-Red-Red 2nd IF Plate Decoupling
108	22K	30492	BTS-22K	BTS-22K		Red-Red-Grn. Tone Compensation
109	270K	30651	BTS-270K	BTS-270K		Red-Vi.-Yl. 1st AF Filter
110	270K	30651	BTS-270K	BTS-270K		Red-Red-Grn. 1st AF Grid
111	2.2 Meg.	30649	BTS-2.2 Meg.	BTS-2.2 Meg.		Br.-Grn.-Or. Driver Grid
112	15K	36714	BTS-15K	BTS-15K		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		RCA PART No.	REPLACEMENT DATA				SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOILT		AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLOY PART No.	SOLAR PART No.		
13A	30	450	36599	AF4444J	UP9DU56	FP238	DY-31.4	UT-161	Filter 86045-7
13B	15	350		PRS25-50	BR1615	UT29	M-16-150	EL-203	Bias Filter
13C	25	125		PRS150-16	UPLAJ28	TC44	DY-20-350	TA-55	Filter 86028-1
14	16	150	31323	AF3G	BR550	TC40	M-4-150	TA-55	Ratio Det.Bias 86011-28
15	15	300	33879	PRS-50/10	BR550	TC40	M-4-150	TA-55	Grid Filter 86011-28
16	5	50	72121	PRS-50/4	BR550	TC40	M-4-150	TA-55	Output Plate Bypass
17	17	50	72121	PRS-50/4	BR550	TC40	M-4-150	TA-55	Output Plate Bypass
18	.0035	1000	70646	1084-003	MD16D3	TP457	TP-10-003	TR-23	Audio Coupling
19	.0035	1000	70646	1084-003	MD16D3	TP457	TP-10-003	TR-23	Audio Coupling
20	.02	600	70632	684-02	DP682	TP412	S-6-02	TC-12	"
21	.02	600	70632	684-02	DP682	TP412	S-6-02	TC-12	"
22	.05	200	72596	484-05	DP485	TP426	S-4-05	TC-15	"
23	.05	200	72596	484-05	DP485	TP426	S-4-05	TC-15	"
24	.01	400	71925	484-01	DP481	TP421	S-4-01	TC-11	"
25	.0012	400	72117	484-001	DP6D1	TP401	S-6-001	TC-21	"
26	.05	200	71951	484-05	DP485	TP426	S-4-05	TC-15	Phono Coupling
27	.05	200	71926	484-005	DP6D5	TP408	S-6-005	TC-25	Tone Compensation
28	.05	200	71951	484-05	DP485	TP426	S-4-05	TC-15	Bias Filter
29	.01	600	70631	684-01	DP681	TP410	S-6-01	TC-11	RF Bypass Pwr. Supp.
30	.01	400	71588	484-01	DP481	TP421	S-4-01	TC-11	Line Bypass
31	.015	200	72120	484-015	DP431	TP401	S-4-01	TC-11	Tone Compensation
32	.015	200	72120	484-015	DP431	TP401	S-4-01	TC-11	"
33	.01	200	71923	484-01	DP431	TP421	S-4-01	TC-11	"
34	.01	400	71925	484-01	DP481	TP421	S-4-01	TC-11	Audio Coupling
35	.05	200	71551	484-05	DP485	TP426	S-4-05	TC-11	ATC Filter
36	.003	200	71926	484-003	DP6D3	TP403	S-6-003	TC-23	Ratio Detector Loads
37	.003	200	71926	484-003	DP6D3	TP403	S-6-003	TC-23	"
38	.005	200	71926	484-005	DP6D5	TP408	S-6-005	TC-25	De-emphasis
39	.005	200	71926	484-005	DP6D5	TP408	S-6-005	TC-25	Driver Plate Decoup.
40	.005	400	71553	484-005	DP6D5	TP408	S-6-005	TC-25	Driver Screen Bypass
41	.005	400	71553	484-005	DP6D5	TP408	S-6-005	TC-25	Driver Grid Filter
42	.005	200	71926	484-005	DP6D5	TP408	S-6-005	TC-25	2nd IF Plate Decoup.
43	.005	400	71927	484-002	DP6D2	TP402	S-6-002	TC-22	2nd IF Screen Decoup.
44	.002	400	71927	484-002	DP6D2	TP402	S-6-002	TC-22	Audio Coupling
45	.01	400	71925	484-01	DP481	TP421	S-4-01	TC-11	1st IF Plate Decoup.
46	.005	400	71553	484-005	DP6D5	TP408	S-6-005	TC-25	1st IF Screen Bypass
47	.005	200	71925	484-005	DP6D5	TP408	S-6-005	TC-25	RF Bypass Pwr. Supp.
48	.005	200	71925	484-005	DP6D5	TP408	S-6-005	TC-25	1st IF Grid Filter
49	.05	200	71551	484-05	DP481	TP421	S-4-05	TC-15	Mixer Grid Filter
50	.01	400	71925	484-01	DP481	TP421	S-4-01	TC-11	Mixer Plate Decoup.
51	.003	200	71921	484-003	DP6D3	TP406	S-6-003	TC-23	Mixer Screen Bypass
52	.003	200	71921	484-003	DP6D3	TP406	S-6-003	TC-23	Mixer Cath. Bypass
53	.003	200	71921	484-003	DP6D3	TP406	S-6-003	TC-23	RF Screen Bypass
54	.01	400	71925	484-01	DP481	TP421	S-4-01	TC-11	Osc. Feedback
55	.005	400	71553	484-005	DP6D5	TP408	S-6-005	TC-25	Osc. Decoupling
56	.01	200	71923	484-01	DP481	TP421	S-4-01	TC-11	Flament Bypass
57	.01	200	71923	484-01	DP481	TP421	S-4-01	TC-11	"
58	1000	500	71929	1468-001	1M5D1	MC255	MW.5-21	1FM-21	Ratio Det. Filter Cer.
59	180	180	39644						Osc. Screen Bypass
60	180	180	71922						Fixed Trimmer Cer.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	
113	22K Ω	1	71989	BTA-22K	Red-Red-Or. Driver Screen Dropping
114	1000 Ω	1	34766	BTS-1000	Br.-Blk.-Red Driver Plate Decoupling
115	1000 Ω	1	34766	BTS-1000	Br.-Blk.-Red Decoupling
116	15K Ω	1	36714	BTS-15K	Br.-Gm.-Or. Ratio Detector RF Filter
117	22K Ω	1	30492	BTS-22K	Red-Red-Or. Ratio Detector Bias Network
118	2.2 Meg.	1	30492	BTS-2.2 Meg.	Red-Red-Gm. AVC Network FM
119	22K Ω	1	30492	BTS-22K	Red-Red-Or. Tone Compensation
120	27K Ω	1	30409	BTS-27K	Red-VI.-Or. Tone Compensation
121	100K Ω	1	3252	BTS-100K	Red-VI.-Or. Television Input Shunt
122	270K Ω	1	30929	BW-4-270	Red-VI.-Br. Isolation
123	270K Ω	1	30651	BTS-270K	Red-VI.-Vi. Tone Compensation
124	56K Ω	1	30650	BTS-56K	Gm.-Blue-Or. Phase Inverter Grid
125	2700 Ω	1	30730	BTS-2700	Red-VI.-Red Phase Inverter Cathode
126	22K Ω	1	30492	BTS-22K	Red-Red-Or. Phase Inverter Cathode
127	27K Ω	1	30409	BTS-27K	Red-VI.-Or. Phase Inverter Plate Load
128	220K Ω	1	14583	BTS-220K	Red-Red-VI. Output Grid
129	220K Ω	1	14583	BTS-220K	Red-Red-VI. Output Grid
130	2760 Ω	9.3	71660	DG-2750	Bleeder
131	2520 Ω	3.97	AB-2500		"
132	180 Ω	3.5	ABA-200		Bias-See Note

Note - On IRC replacement set slider at 180 Ω from one end.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	RCA PART No.	
131	117V AC @ 1.2A	720V CT @ 1.37A	5.1V AC @ 2.6A	6.5V AC @ 4.25A	37048	Original Part No. 94161-501

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.		RCA PART No.	STANCOR PART No.	THORDAR'N PART No.	
	PRI.	SEC.	PRI.	SEC.				
132	1200 Ω CT	2.25 Ω	600 Ω	.32	71661	A-3956†	T22S56†	†Drill new mounting holes. Original Part No. 940394-1

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC IMP.	RCA PART No.	JENSEN PART No.	
133	1100 Ω	2.25 Ω	71144		Original Part No. 92567-2W
134	11-7/8"	1-3/8"	36145		Field Coil Part No. 71146

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	RCA PART No.	MEISSNER PART No.
135	Loop Ant.	70 Ω	1.5 Ω	71862	
136	Dipole Ant.			71864	
137	Loop Leading Coil			71862	
138	SW Ant. Coil	1.2	1.5 Ω	71856	
139	FM Ant. Coil	0 Ω	0 Ω	71940	
140	BC RF Coil	41 Ω	3.5 Ω	71857	
141	SW RF Coil		0 Ω	71854	
142	FM RF Coil		0 Ω	71938	
143	RF Choke Coil	16 Ω	16 Ω	71939	
144	BC Osc. Coil	4 Ω	4 Ω	71852	
145	SW Osc. Coil		0 Ω	71853	
146	FM Osc. Coil		0 Ω	71937	

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	RCA PART No.	MEISSNER PART No.
147	Filament				
148	Choke Coil		.5 Ω	71942	
149	Filament				
150	Choke Coil		.5 Ω	71942	
151	Input IF (AM)	6 Ω		71846	
152	Output IF (AM)	6 Ω		71848	
153	Input IF (FM)	.1 Ω		71845	16-6665
154	Inter IF (FM)	.3 Ω		71847	
155	Output IF (FM)	.3 Ω		71849	
156	Driver Trans.	.3 Ω		71935	
157	Ratio Det.		.1 Ω	71934	
158	Transformer				

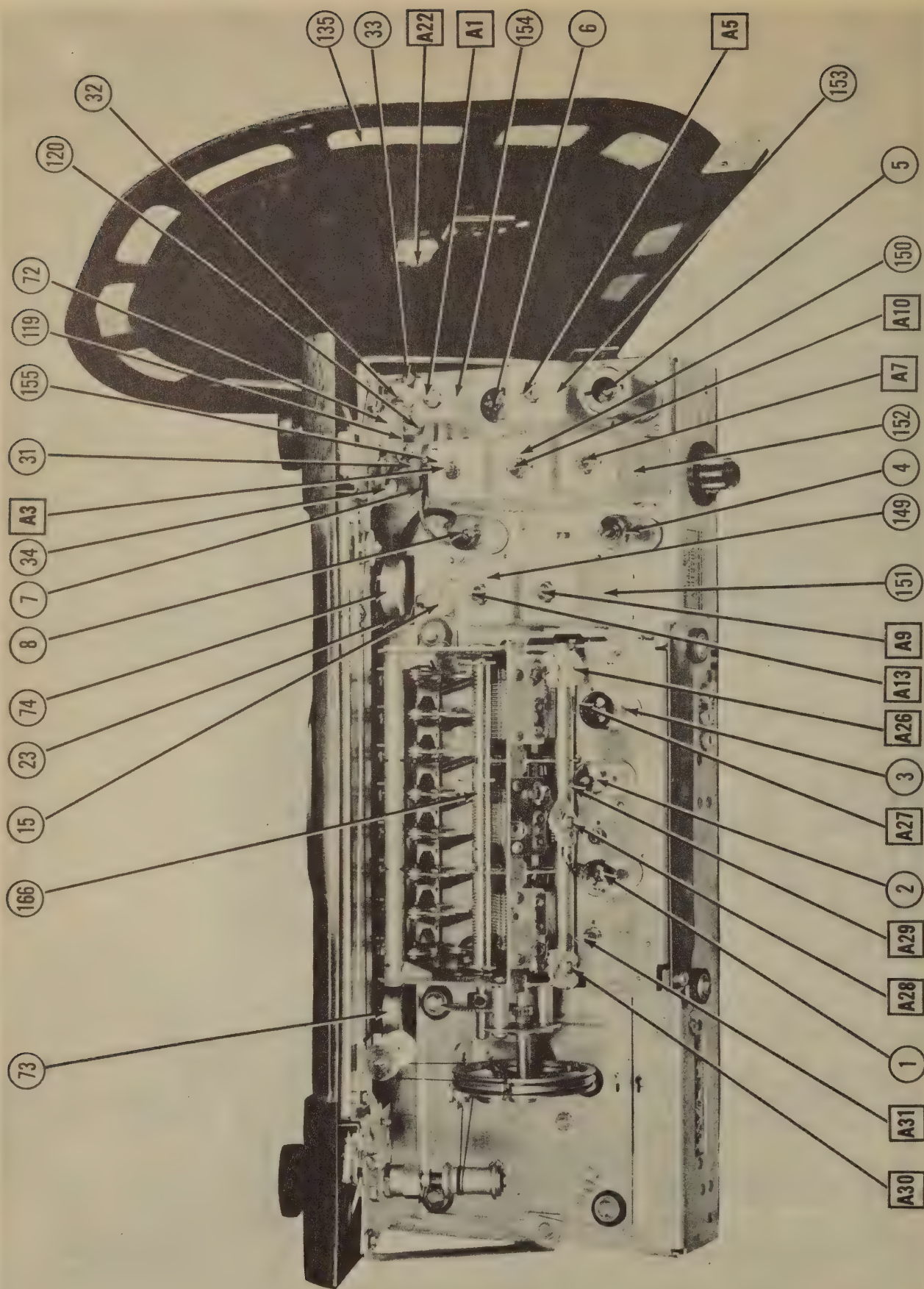
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					RCA PART No.		
156	Bayonet	7.5	0.20	White	11765		Type 51
157	"	"	"	"	"		"
158	"	"	"	"	"		"
159	"	"	"	"	"		"
160	"	"	"	"	"		"
161	"	"	"	"	"		"
162	"	"	"	"	"		"
163	"	6.8	0.25	Blue	11891		Type 44

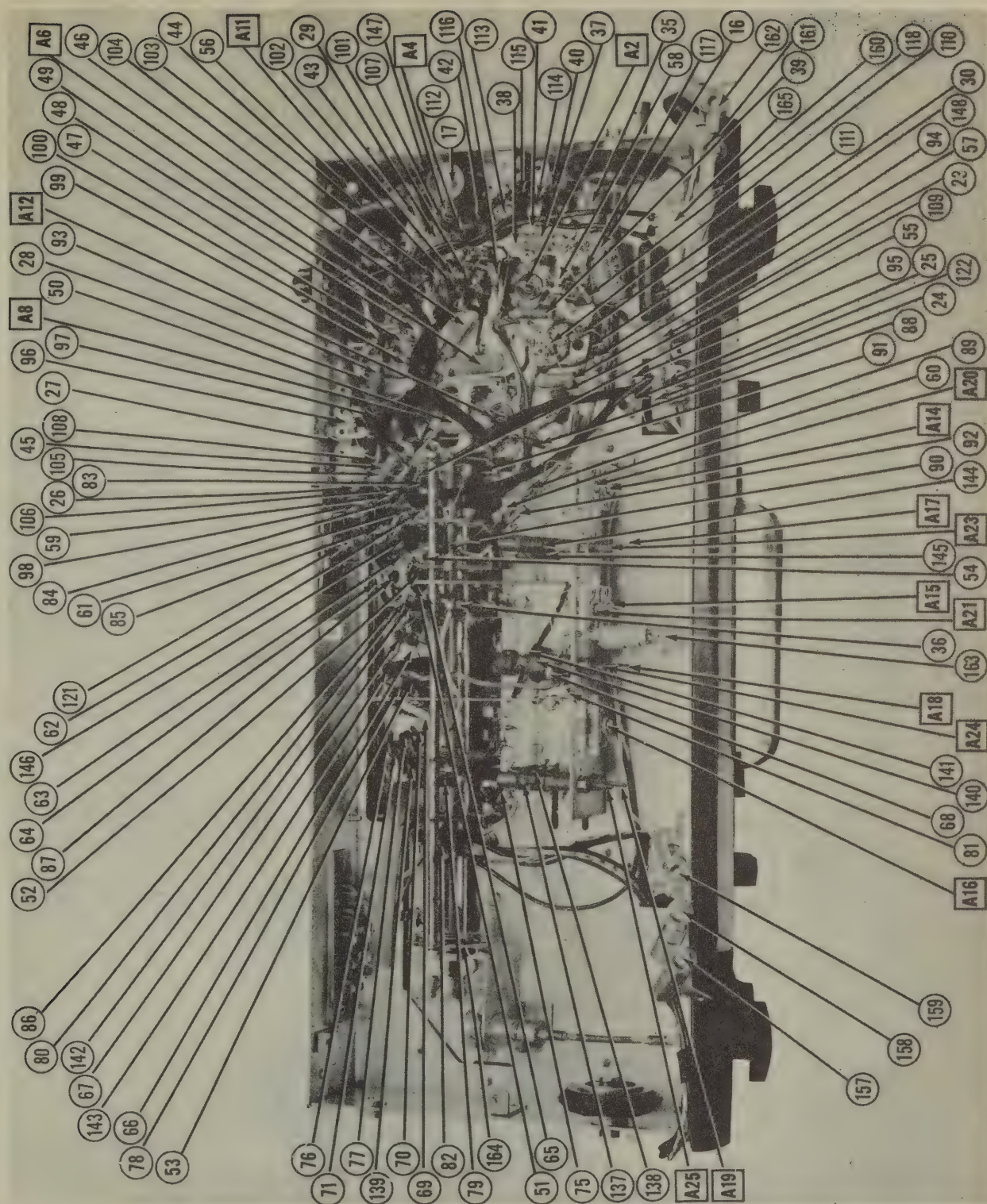
MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
164	Switch	71802	Band-Photo
165	Switch	71640	Power
166	Tuning Cap.	71807	10-160M μ F
A15	Trimmer Cap.	71807	10-160M μ F
A16	"	71808	3-35M μ F
A20	"	71809	1.6-18 M μ F
A21	"	38684	2-20M μ F
A22	"	71803	2.5-13 M μ F
A26	"	71804	1.6-18 M μ F
A28	"	71804	1.6-18 M μ F
A30	"	71804	Short Wave
	Dial	71852	Broadcast
	Dial	71853	req. Mod.
	Indicator	71894	Station Selector

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW

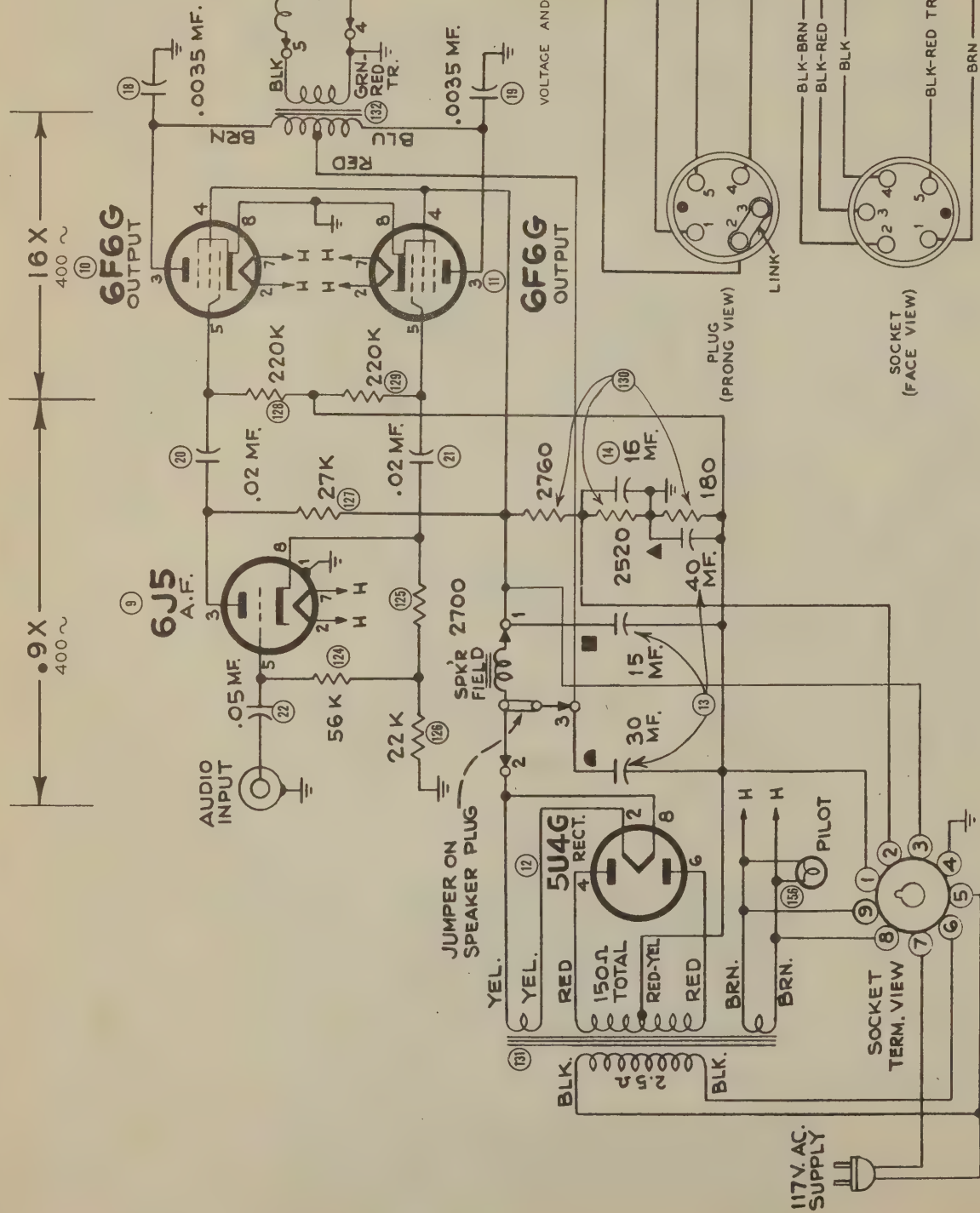


The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



PIN	6J5	RES.	6F6G
NO.	VOLT.	RES.	VOLT.
1	0V.	0Ω	0V.
2	0V.	0Ω	0V.
3	200MDC	28KΩ	375VDC
4	52VDC	21KΩ	260VDC
5	43VDC	75KΩ	-23VDC
6	47VDC	18KΩ	0V.
7	6.5VAC	1Ω	6.5VAC
8	52VDC	21KΩ	0V.

PIN	6F6G	RES.	5U4G
NO.	VOLT.	RES.	VOLT.
1	0V.	0Ω	0V.
2	0V.	0Ω	420VAC
3	375VDC	6000Ω	0V.
4	260VDC	4500Ω	360VAC
5	-23VDC	200KΩ	0V.
6	0V.	1Ω	360VAC
7	6.5VAC	1Ω	0V.
8	0V.	0Ω	420VAC

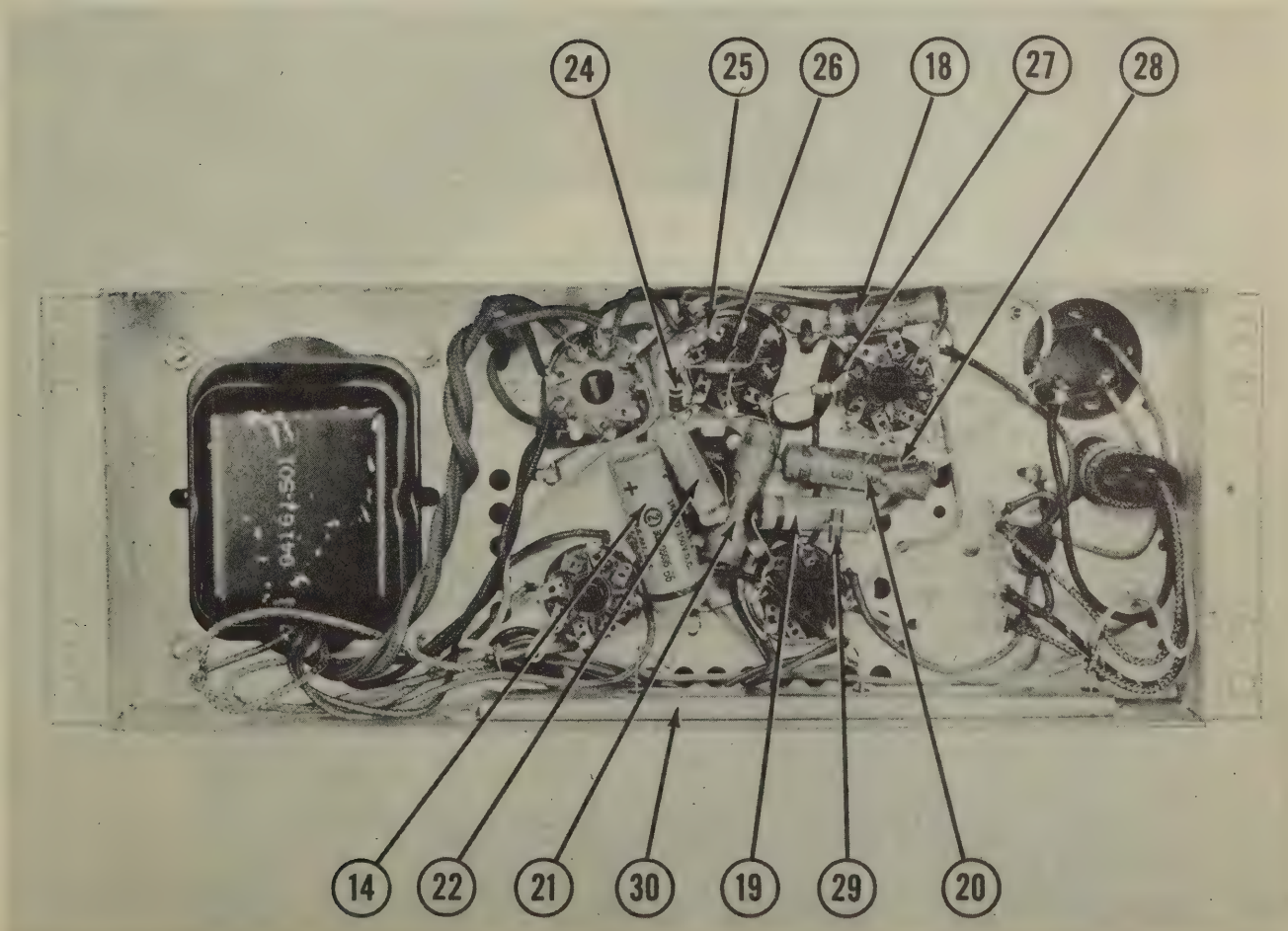
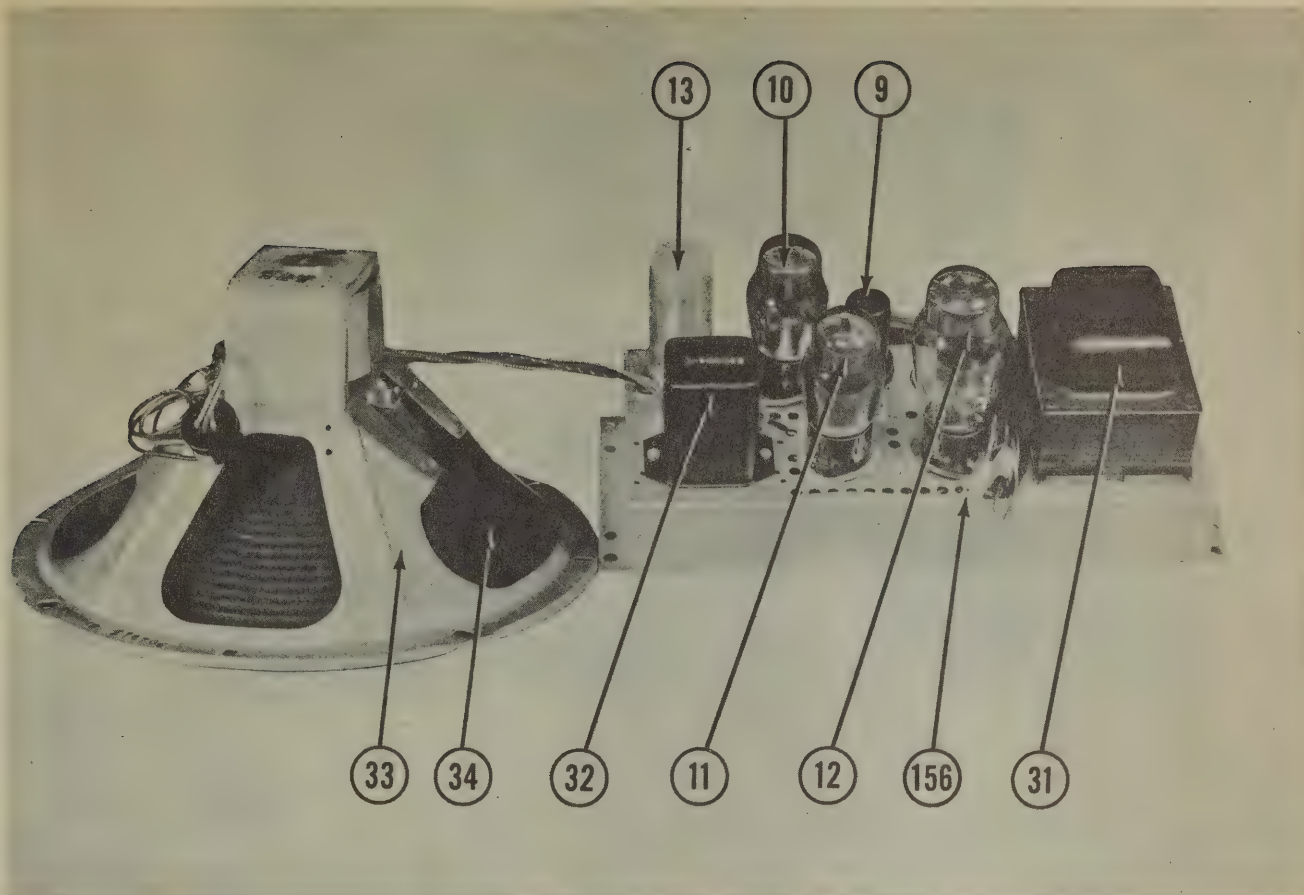
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

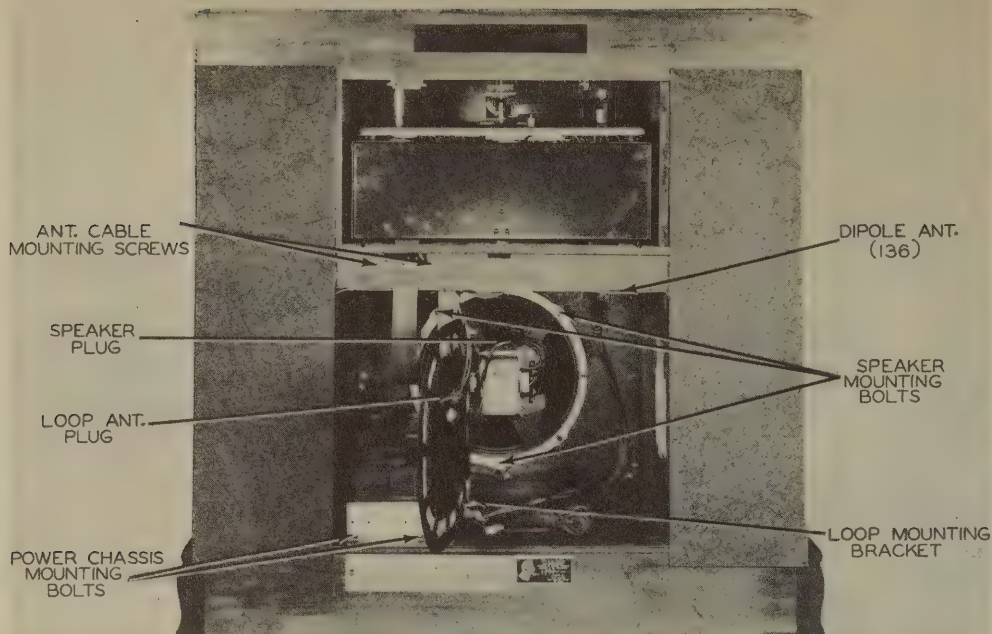
VOLTAGE AND RESISTANCE TAKEN IN BROADCAST POSITION

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

SPEAKER CONNECTIONS

477-27





RADIO CHASSIS AND SPEAKER DISASSEMBLY

1. Remove plug from rotating loop antenna.
2. Remove cotter keys from loop mounting brackets.
3. Remove washers from loop mounting brackets.
4. Remove loop antenna and springs.
5. Remove cabinet pilot light from bracket under front of cabinet. Push light up through hole.
6. Remove speaker plug from speaker.
7. Remove AF plug from power and audio chassis.
8. Remove power plug from power and audio chassis.
9. Remove two screws holding AC line cord clamp. Remove clamp.
10. Remove four power and audio chassis mounting bolts. Remove chassis.
11. Remove three hex nuts holding speaker. Remove speaker.
12. Remove antenna plug from chassis.
13. Remove power plug from chassis.
14. Remove AF plug from chassis.
15. Remove phono pick-up plug from chassis.
16. Loosen screw holding ground strip from phono mounting to chassis and remove ground strip.
17. Remove "roll out" stop. (Access to nut can be made up through slot in bottom of carriage platform). Remove "roll out" carriage.
18. Remove eight Phillips head screws holding chassis. Remove chassis.
19. Loosen nut on bolt fastening power and AF cables to spring. Remove spring.
20. Remove three clamps holding power and AF cables. Remove cables.
21. Remove seven self-tapping screws holding bottom chassis shield. Remove shield.
22. Remove two wood screws and two bolts holding antenna cable and remove cable.

PUSHBUTTON ADJUSTMENTS

Make a list of stations desired to be set up. Any arrangement is possible but the preferable procedure is to adjust for stations in order of frequency, from low to high.

1. Turn receiver on and allow it to warm up for about 15 minutes.
2. Remove buttons simply by pulling on them.
3. Loosen the slotted head adjustment screws for each button rod.
4. Tune in accurately the first station on your list with the manual tuning control.
5. Push in first button rod completely.
6. Tighten slotted head adjustment screw for 1st button.
7. To check accuracy of setting, detune the station with the manual tuning control and re-tune with pushbutton. If tuning is off slightly repeat Steps 4 through 7.
8. Replace button.
9. To set up the remaining buttons follow the same procedure as outlined above.

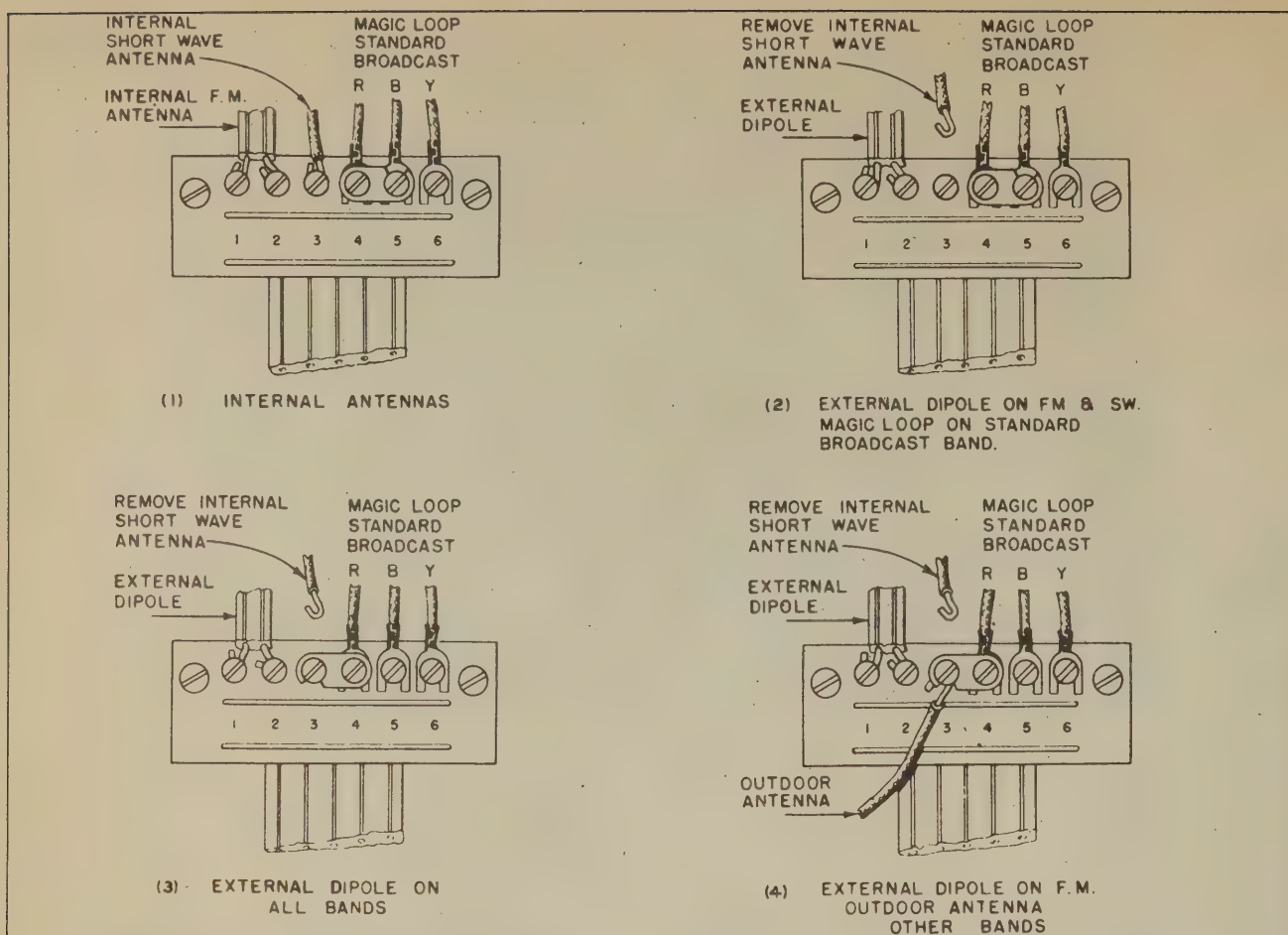
RCA PAGE 11

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set the pointer at the last reference mark at the low frequency end of the broadcast band. Use a vacuum tube voltmeter as an output indicator when aligning the FM channels. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to pin #1 (grid) 6AUG (6). Low side to chassis.	10.7MC (30% mod. 400~AM)	FM (Select knob fully clockwise)	High freq. end of dial.	VTM across capacitor 16.	A1	Connect 6802 resistor between lugs D and E of ratio detector transformer (155). Adjust A1 for maximum reading.
.01 MFD	"	"	"	"	Connect 2 680002 resistors in series across capacitor 16. Connect common lead of VTM to junction of these resistors. Connect DC probe to junction of capacitor 39 & resistor 116.	A2	Remove 6802 from lugs D and E. Adjust A2 for zero reading. Zero point is approached rapidly and continued adjustment causes polarity to reverse. A slow approach to the zero point is an indication of severe detuning and A2 should be turned in the opposite direction.
.01 MFD	"	"	"	"	Output meter across voice coil.	A3	Adjust for minimum output. The zero DC balance and minimum AF output should occur at the same point. If they do not it may be necessary to adjust A2 and A3 simultaneously so that they will occur at the same point. Repeat Step 1 omitting 6802 resistor connection. Remove all connections.
.01 MFD	High side to Pin #1 (grid) of 6BA6 mixer (2). Low side to chassis near socket.	"	"	Low freq. end of dial.	VTM across capacitor 16 (10V scale)	A4, A5, A6, A7, A8, A9.	Alternately load primary and secondary of 6802 transformer with 6802 while the opposite side of the same transformer is being adjusted. Adjust for maximum reading on VTM.
.01 MFD	"	455KC (30% mod. 400~AM)	C Band (Second position clockwise)	High freq. end of dial.	Output meter across voice coil.	A10, A11, A12, A13.	Adjust for maximum output. Do not distribute any 10.7 MC if adjustments as it will detune the 455KC IF's.
1503 in series with 25 MTF.	High side to terminal #3 on ant. cable. Low side to chassis.	15.5MC	"	15.5MC	"	A14	Adjust for maximum output. Turn signal generator to 16.41MC. The image should be heard. If it is not, reset signal generator to 15.5MC and open A14 to next peak and recheck for image.

[illegible]



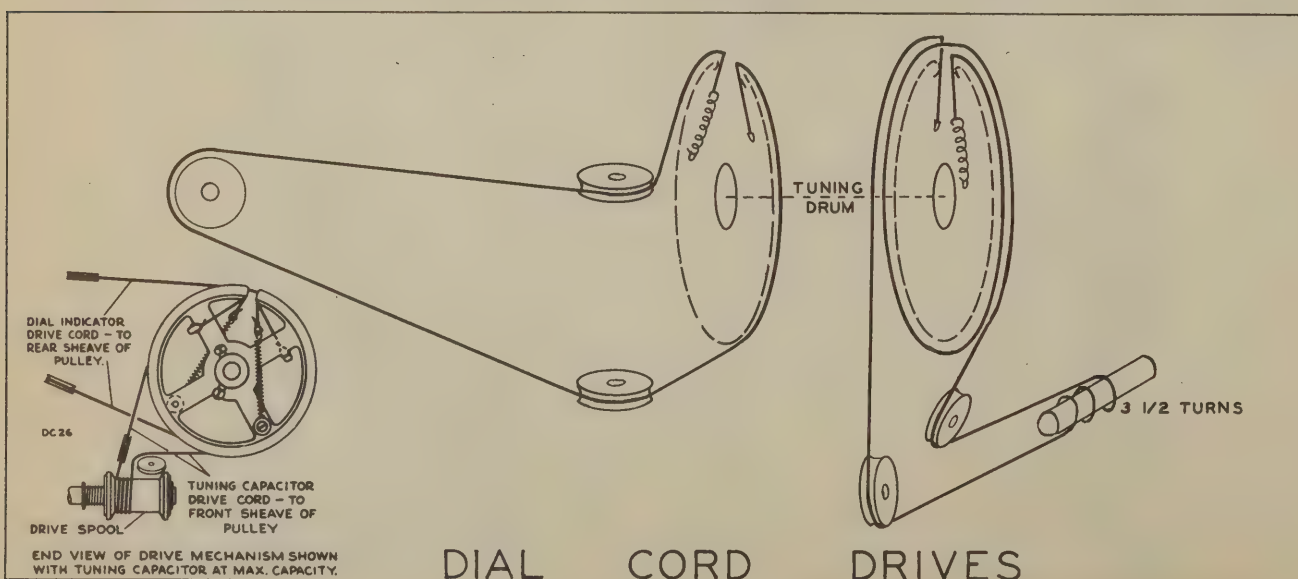
EXTERNAL ANTENNAS—If reception is not satisfactory on one or more of the three bands, using the built-in cabinet antennas, an external antenna may be used. The Magic Loop Antenna will usually provide sufficient pickup on the Standard Broadcast band, but if an external dipole is installed to improve reception on Frequency Modulation it may be used for Standard Broadcast and Short Wave as well. Connections are made to the antenna terminal board in the back of the cabinet. External antennas may be erected indoors or outdoors and should be oriented in direction for requirements of best reception. RCA Television Antenna, Stock No. 225 or 226, or the equivalent with 300-ohm transmission line is recommended for an external antenna.

Figure 1 shows the Antenna Terminal Board with connections for internal cabinet antennas.

Figure 2 shows connections for the RCA Television Antenna replacing those for the internal FM antenna on terminals 1 and 2, and the internal SW antenna disconnected at terminal 3. The external dipole antenna is now the antenna for FM and SW bands.

Figure 3 shows the additional change for connecting the Standard Broadcast band to make use of the external RCA Television Antenna. The link across terminals 4 and 5 is changed to terminals 4 and 3. The external antenna is now effective on all bands. Tighten terminals and be sure that the red, black and yellow leads (R.B.Y.) to terminals 4, 5 and 6 are still in place and securely connected.

Figure 4 shows connections for a separate outdoor antenna on SW and SB reception, and the external dipole on FM. This outdoor antenna should consist of a wire 30 to 60 feet or so in length mounted in a convenient location as high as possible. Connect lead-in from the antenna to terminal 3 on the antenna terminal board. This outdoor antenna is effective on SB and SW bands. If this connection makes the SB signal too strong, causing overload and distortion, replace the link across terminals 4 and 5 as in figures 1 and 2. This outdoor antenna is now effective on SW only.





REGAL MODEL 1049

TRADE NAME		Regal, Model 1049					
MANUFACTURER		Regal Electronics Corp., 20 W. 20th St., New York, N.Y.					
TYPE SET		AC-DC Operated 2-Band Superheterodyne with Self Contained Loop Antenna					
TUBES (SIX)		Types, 12SH7 RF Amp., 12SA7GT/G Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier or Lock-In Type Tube Equivalents.					
POWER SUPPLY		105-125 Volts AC-DC		RATING		.250 Amp. @ 117 Volts AC	
TUNING RANGE—BROADCAST		540-1650KC		SHORT WAVE		5.8-18.3MC	
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
To set pointer turn tuning cap fully closed and set pointer 1-11/16" from left end of dial back-plate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to front stator of tuning cap. Low side to chassis.	455KC	BC	Tuning cap. fully open.	Across voice coil	A1,A2,A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD to reduce hum modulation.
.1 MFD.	"	"	"	"	"	A5	Adjust for minimum output
.1 MFD.	"	1650KC	"	"	"	A6	Adjust for maximum output
.1 MFD.	"	600KC	"	2-1/4" from left end of dial back-plate.	"	A7	" " " "
200MMFD	High side to ext. ant. lead.	1500KC	"	"	"	A8	Rock tuning cap and adjust for maximum output.
400Ω	"	18.3MC	SW	Tuning cap. fully open.	"	A9	Adjust for maximum output
400Ω	"	17MC	"	Tune for maximum output.	"	A10	Rock tuning cap. and adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

REGAL
MODEL 1049

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		REGAL PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1A	RF AMP.	12SH7	12SH7	8BK	
B	"	128Q7	128Q7	8BK	
C	"	14A7	14A7	8V	
2A	Converter	12SA7GT	12SA7GT	8AD	
B	"	14Q7	14Q7GT	8AL	
3A	IF AMP.	12SK7GT	12SK7GT	8N	
B	"	14A7	14A7	8V	
4A	Det.-AVC-AP	12SQ7GT	12SQ7GT	8Q	
B	"	14B6	14B6	8W	
5A	Power Output	35L6GT	35L6GT	7AC	
B	"	35A5	35A5	6AA	
6A	Rectifier	35Z5GT	35Z5GT	6AD	
B	"	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		REGAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	
7A	CAP. 50	PRSA150-50	EZ5515	2N521	DHN-2x50-150	TA-505
B	150					
8	.05	684-05	DT685	TP415	S-6-05	TC-15
9	.01	484-01	DT481	TP421	S-4-01	TC-11
10	.01	484-01	DT481	TP421	S-4-01	TC-11
11	.006	684-006	DT686	TP409	S-6-006	TC-26
12	.005	484-05	DT485	TP426	S-4-05	TC-15
13	.05	484-05	DT485	TP426	S-4-05	TC-15
14	.005	484-05	DT485	TP426	S-4-05	TC-15
15	.005	484-05	DT485	TP426	S-4-05	TC-15
16	.05	484-05	DT485	TP426	S-4-05	TC-15
17	.05	484-05	DT485	TP426	S-4-05	TC-15
18	250	1488-00025	SW5225	MC246	MO-5-325	1FM-325
19	100	1488-0001	SW511	MC235	MO-5-31	1FM-31
20	500	1488-0001	SW511	MC235	MO-5-31	1FM-31
21	100	1488-0001	SW511	MC235	MO-5-31	1FM-31
22	500	1488-0001	SW511	MC235	MO-5-31	1FM-31
30	6					

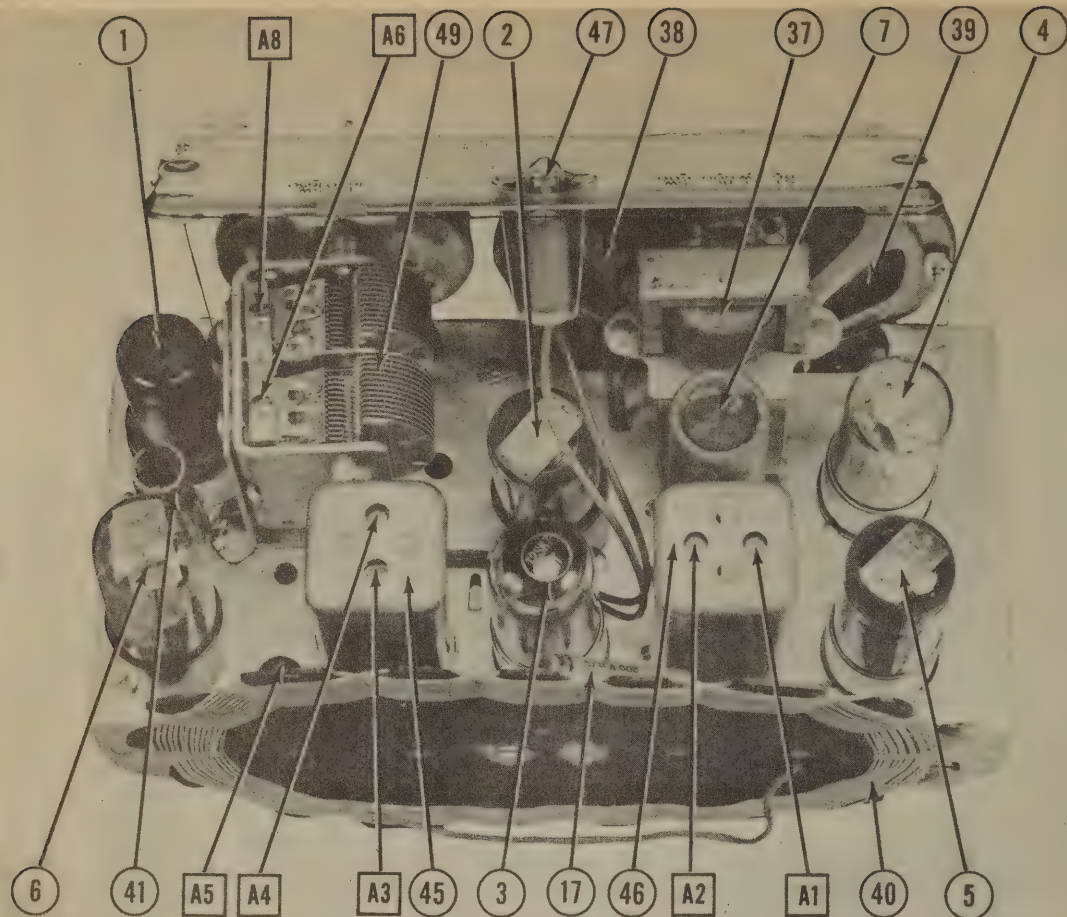
*Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		REGAL PART No.	MALLORY PART No.	IRC PART No.	
22A	500K B Shart d Switch	Not Req.	MR48	D13-133 A 41	Vol. Cont. Attach to 22A per Instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		REGAL PART No.	IRC PART No.	IRC PART No.	
23	250KΩ			BTS-270K	Red-Grn.-YL. RF Grid SW.
24	4700Ω			BTS-4700	YL.-VL.-Red. RF Plate Load
25	100KΩ			BTS-100K	Br.-Blk.-YL. Converter Grid
26	25KΩ			BTS-27K	Red-Grn.-Or. Oscillator Grid
27	50Ω			BW-1-47	Grn.-Blk.-Blk. Parasitic Suppressor
28	1000Ω			BTS-1000	Br.-Blk.-Red. Converter Screen Dropping
29	2 Meg.			BTS-2.2 Meg.	Br.-Blk.-Grn. AVC Network
30	47KΩ			BTS-47K	YL.-VL.-Or. Diode RF Filter
31	16 Meg.			BTS-10 Meg.	Br.-Blk.-Blue AF Grid
32	250KΩ			BTS-270K	Red-Grn.-YL. AF Plate Load
33	470KΩ			BW-2-150	YL.-VL.-YL. Output Grid
34	150Ω			Br.-Grn.-Br. Output Cathode	
35	1000Ω			Br.-2-1000	Br.-Blk.-Red. Filter
36	15Ω			BW-2-15	Br.-Grn.-Blk. Rectifier Ballast



PARTS LIST AND DESCRIPTIONS (Continued) TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	REGAL PART No.	THORDARN PART No.	
37	3200Ω	2.6Ω	2302	.8Ω	
			Part of 110-101		

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		REGAL PART No.	JENSEN PART No.	
38	FIELD PM	VC IMP.	ST-105	
		2.8Ω	Mod. PS-X	
39	CONE DIA.	VC DIA.	110-101	
	4-3/4"	1/2"		
			NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT	

R F COILS

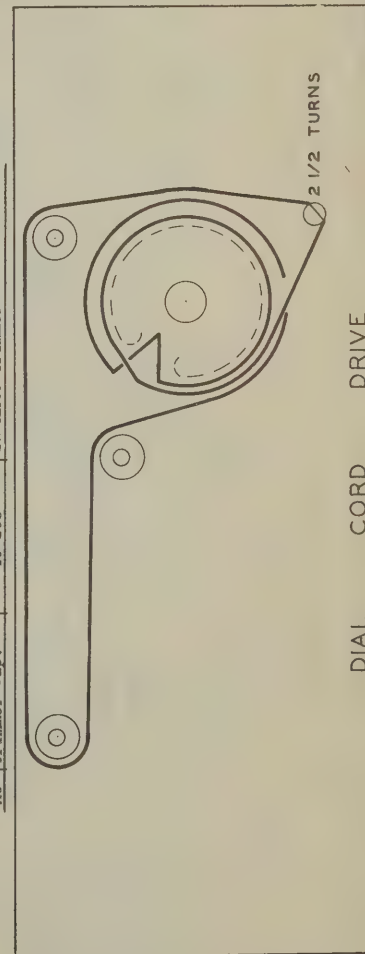
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	REGAL PART No.	MEISSNER PART No.
40	Loop Ant.	0Ω	1.2Ω	30-107	
41	SW Ant. Coil	.3Ω	0Ω	30-111	14-1044
42	BC Osc. Coil			40-103	14-1040
43	SW Osc. Coil			40-105	14-1046
44	Wave Trap			30-106	
45	Input IF	23Ω	23Ω	30-104	16-6658
46	Output IF	23Ω	23Ω	30-105	16-6660
					42 & 43 wound on same form

DIAL LIGHT

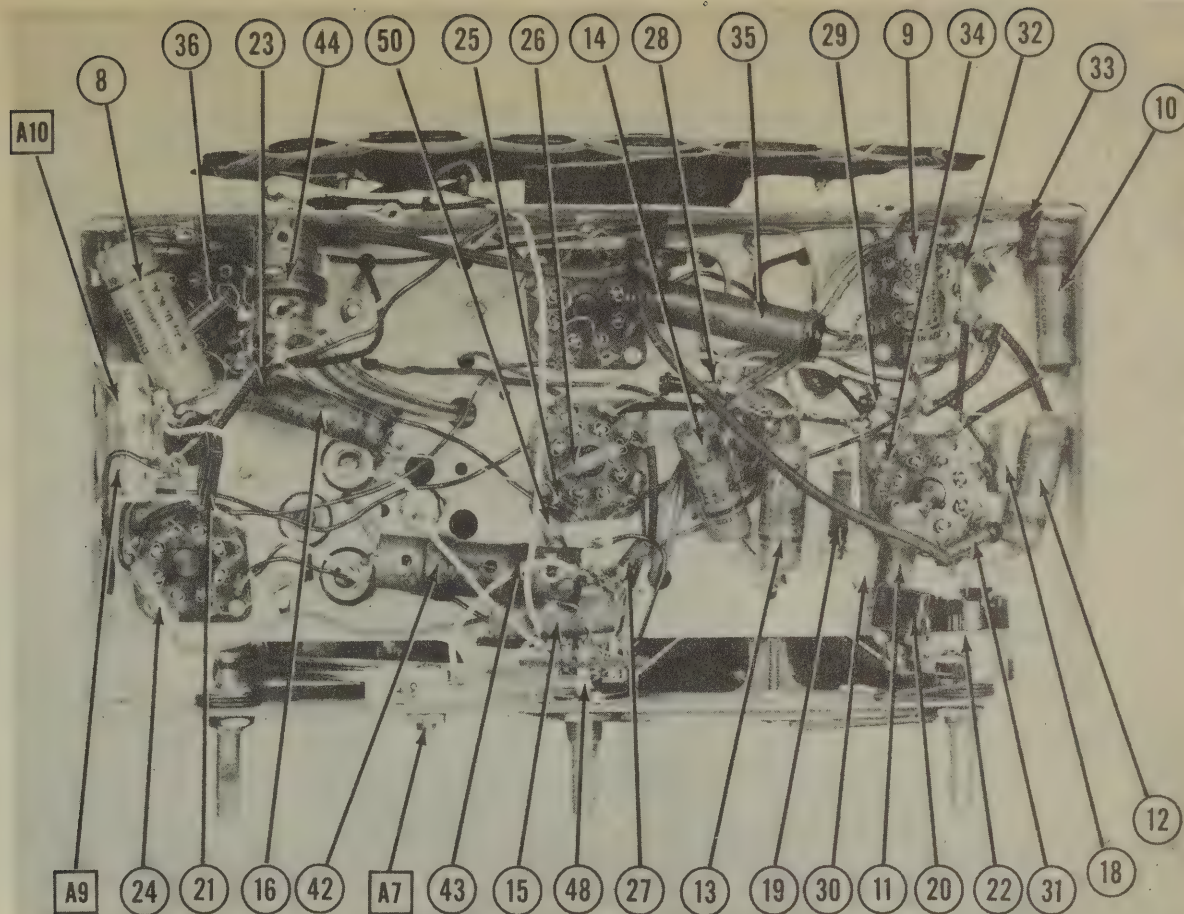
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					REGAL PART No.	MEISSNER PART No.	
47	Bayonet	6-8	0.15	Brown			Type 47

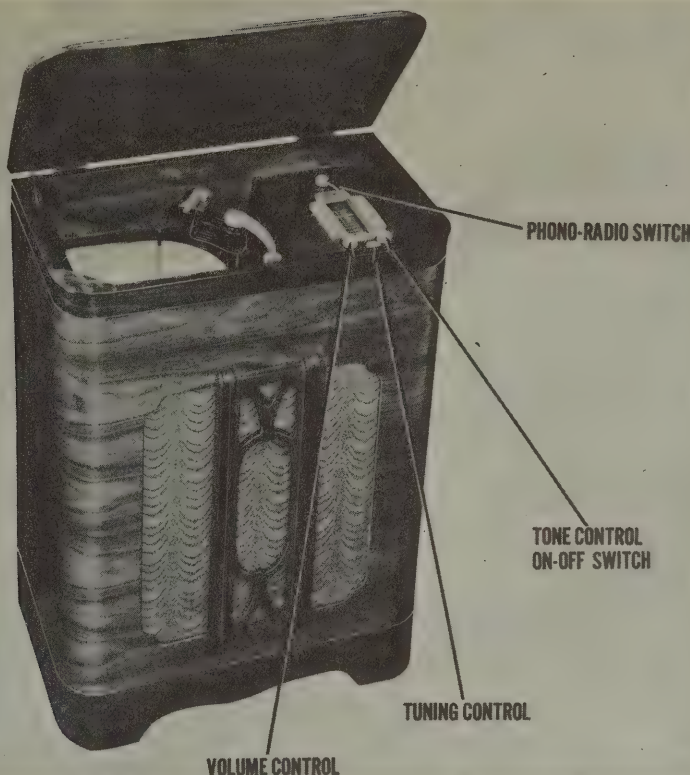
MISCELLANEOUS

ITEM No.	PART NAME	REGAL PART No.	NOTES
48	Bandswitch	95-102	
49	2 Gang Var. Cap	40-104	(20-472MUF) each section.
A5	Wave Trap Cap.	30-106	
A7	Trimmer Cap.	40-103	Osc. Padder
A8	Trimmer Cap.	40-105	SW Osc. Trimmer
A9	Trimmer Cap.	40-105	SW Ant. Trimmer



CHASSIS—BOTTOM VIEW





SILVERTONE MODEL 7100

TRADE NAME	Silvertone, Model 7100 (Ch. 101.811)		
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.		
TYPE SET	AC Operated Phono-Radio Combination Superheterodyne - Loop Antenna		
TUBES (SIX)	Types, 7B7 RF Amp., 14Q7 Converter, 7B7 IF Amp., 7C6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.		
POWER SUPPLY	105-125 Volts AC		
TUNING RANGE—BROADCAST	530-1650KC	RATING	.240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.001 MFD	High side to Pin 6 (grid) of 14Q7. Low side to B-.	455KC	Tuning cap. closed.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
200MMFD	High side to ext. ant. lug. Low side to chassis.	1500KC	1500KC	"	A5	Adjust for maximum output.
200MMFD	"	1500KC	Tune for maximum output.	"	A6,A7.	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove phono-motor plug from chassis.
3. Remove phono-pickup plug from chassis.
4. Remove speaker plug from speaker.
5. Remove leads to loop antenna.
6. Remove four chassis mounting bolts. Remove chassis.
7. Remove four screws holding speaker. Remove speaker.
8. Remove staples holding loop antenna. Remove loop antenna.

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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

SILVERTONE
MODEL 7100 (Ch. 101.811)

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		SILVERTONE PART No.	RMA BASE TYPE	
1	RF Amp.	7B7	8V	
2	Converter	14Q7	8AL	
3	IF Amp.	7B7	8V	
4	Det.-AVC-AF	7C6	8V	
5	Power Output	50A5	6AA	
6	Rectifier	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

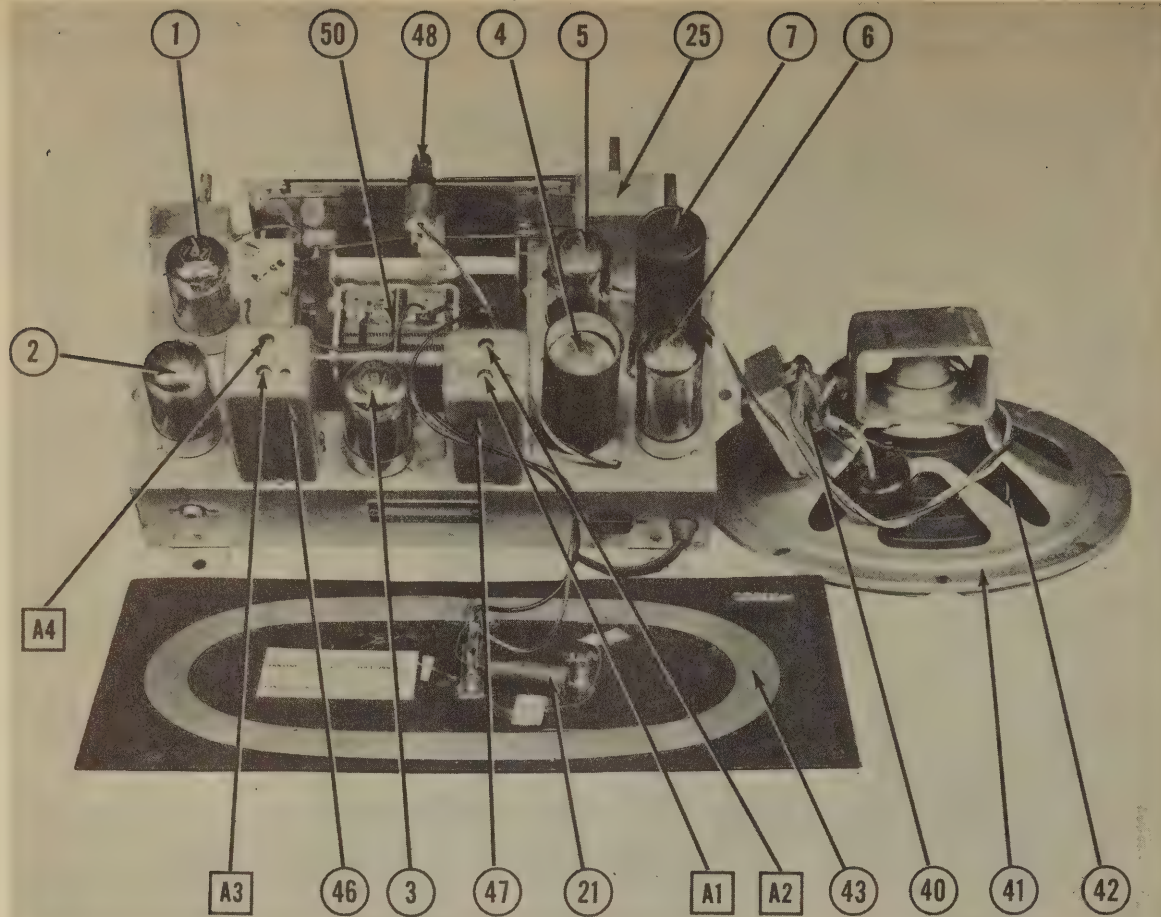
ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	SILVERTONE PART No.	AEROVOX PART No.	CORNEILL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	40	150	R60416	AF88D4A	UP6CU44	FP357	DY-305	EL-352	
B	40	150						■ Filter	
C	20	25						▲	
8	.05	600		684-05	D76S5	TP415	S-6-05	Cath. Bypass	
9	.02	600		684-02	D76S2	TP412	S-6-02	Line Filter	
10	.05	600		684-05	D76S5	TP415	S-6-05	Output Plate Bypass	
11	.005	600		684-005	D76D5	TP408	S-6-005	Tone Compensation	
12	.1	200	R60676	484-1	D74P1	TP428	S-4-1	Audio Coupling	
13	.1	200		484-1	D74P1	TP428	S-4-1	Audio Plate Decoup	
14	.005	600		684-005	D76D5	TP408	S-6-005	Line Isolation	
15	.01	600		684-01	D76S1	TP410	S-6-01	Audio Coupling	
16	.005	600		684-005	D76D5	TP408	S-6-005	Tone Compensation	
17	.05	200		484-05	D74S5	TP426	S-4-05	Audio Coupling	
18	.05	200		484-05	D74S5	TP426	S-4-05	Phono Isolation	
19	.05	200		484-05	D74S5	TP426	S-4-05	RF Bypass Pwr. Supp.	
20	.01	400		684-01	D74S1	TP421	S-4-01	AVC Filter	
21	.001	600		684-001	D76D1	TP404	S-6-001	Fixed Padder	
22	100	500		1468-0001	5W5T1	MC235	MO-5-31	Ext. Ant. Coupling	
23	100	500		1468-0001	5W5T1	MC235	MO-5-31	Audio Plate Bypass	
24	100	500		1468-0001	5W5T1	MC235	MO-5-31	OSC. Grid Capacitor	
25	100	500		1468-0001	5W5T1	MC235	MO-5-31	RF coupling	

CONTROLS

ITEM No.	RATING RESIST-ANCE	WATTS	REPLACEMENT DATA			INSTALLATION NOTES
			SILVERTONE PART No.	MALLORY PART No.	CLAROSTAT PART No.	
25A	2 Meg.	1	R60505	MR454	T-120	Volume Control
B	Shaft		Not Req.	Not Req.	Not Req.	Attach to 25A per instructions
26A	100KΩ	1	R60616	MR39	M-51-Z	Tone Control
B	Shaft		Not Req.	Not Req.	Not Req.	Attach to 26A per instructions
C	Switch			126	SW-A	

RESISTORS

ITEM No.	RATING RESISTANCE	WATTS	REPLACEMENT DATA		IDENTIFICATION CODES
			SILVERTONE PART No.	IRC PART No.	
27	1 Meg.	1/3		BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
28	22KΩ	1/3		BTS-22K	Red-Red-Or. Oscillator Grid
29	470Ω	1/3		BTS-470	Yl.-Vi.-Br. Parasitic Suppressor
30	2.2 Meg.	1/3		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
31	330KΩ	1/3		BTS-330K	Or.-Or.-Yl. Phone Shunt
32	47KΩ	1/3		BTS-47K	Yl.-Vi.-Or. Tone Compensation
33	4.7 Meg.	1/3		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
34	2.2 Meg.	1/3		BTS-2.2 Meg.	Red-Red-Grn. AF Plate Load
35	470KΩ	1/3		BTS-470K	Yl.-Vi.-Yl. AF Plate Decoupling
36	470KΩ	1/3		BTS-470K	Yl.-Vi.-Yl. Output Grid
37	150Ω	1		BW-150	Br.-Grn.-Br. Output Cathode
38	25Ω	1		BW-1-27	Red-Grn.-Blk. Surge Limiter
39	1.200Ω	1		BTA-1200	Br.-Red-Red Filter



PARTS LIST AND DESCRIPTIONS (Continued)
TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	SILVERTONE PART No.	THORDAR'N PART No.	
40	2400Ω 3.5Ω PRI. SEC. 320Ω SEC. .9Ω tapped @ 12Ω		R61038	A-3849*	*Add extra filter to reduce hum level.

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		SILVERTONE PART No.	JENSEN PART No.	
41	FIELD VC IMP. PM 3.5Ω	R61032	ST-115 Mod. P8-V	
42	COIL DIA. VC DIA. 7-3/8" 7/8"	R61037		

R F COILS

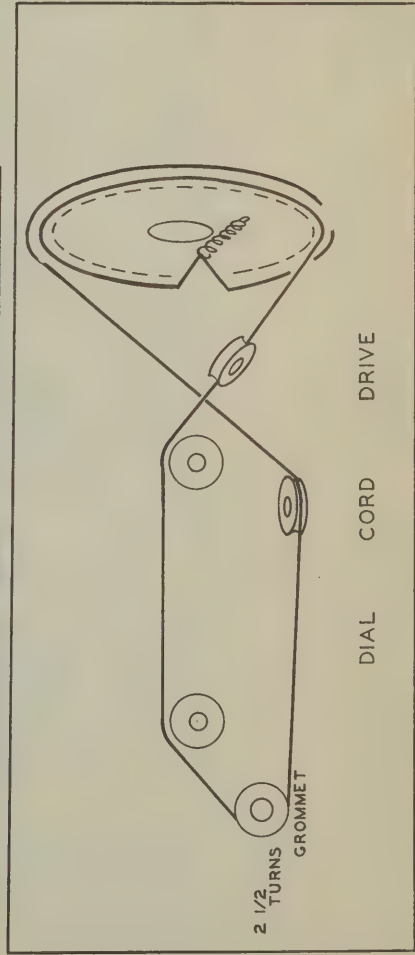
ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		DC RES.	MEISSNER PART No.	
43	Loop Ant.	PRI. SEC.	SILVERTONE PART No.	
44	RF Coil	2Ω 2Ω	R60882	
45	Osc. Coil	2Ω 15Ω	R60465	
46	Input IF	10.5Ω 11Ω	R60448	
47	Output IF	14Ω	R60417	

DIAL LIGHT

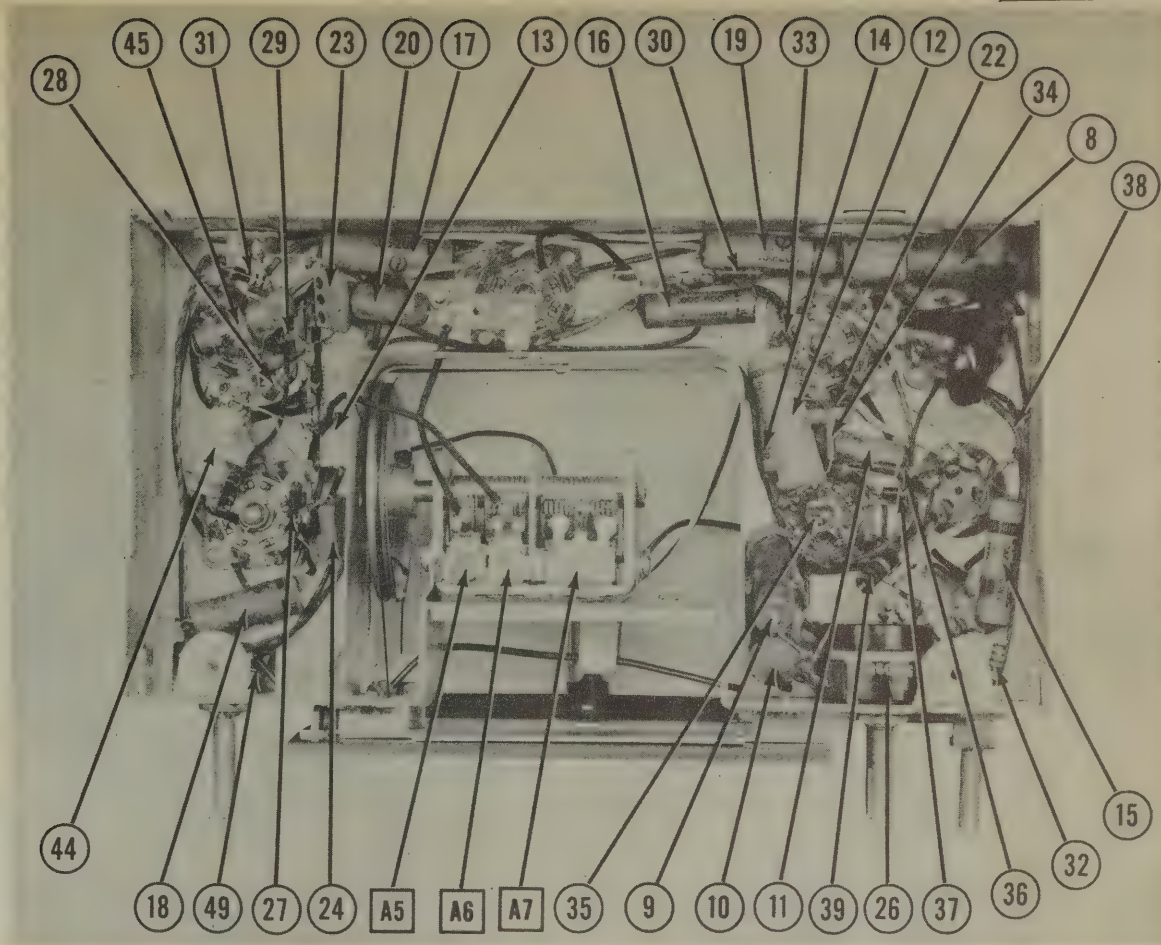
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	SILVERTONE PART No.	
48	Bayonet	6-8	0.15	Brown		Type 47

MISCELLANEOUS

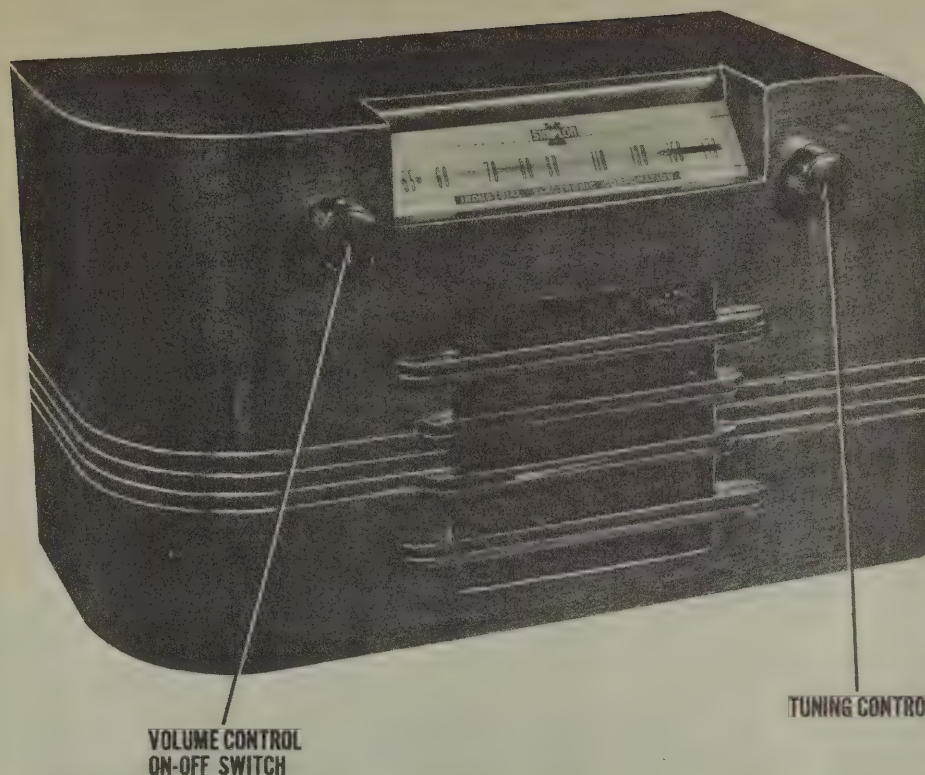
ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
49	Radio-Phono Sw.	R60517	
50	5 gang Var. Cap.	R60413	
	Dial Pointer	R60506	
	Phono Motor	R60510	
	Turntable	R52904	
	XTAL Cartridge	R52891	
		R52826	



CHASSIS—BOTTOM VIEW



SIMPLON
MODEL WV2



SIMPLON
MODEL WV2

SIMPLON MODEL WV2

TRADE NAME Simphon, Model WV2
MANUFACTURER Industrial Electronic Corp., 505 Court St., Brooklyn, N.Y.
TYPE SET AC-DC Operated Superheterodyne Receiver-Self Contained Loop Antenna
TUBES (FIVE) Types, 14Q7 or 12BE6 Converter, 14A7 or 12BA6 IF Amp., 14B6 or 12AT6 Det.-AVC-AF, 50A5 or 50B5 Power Output, 35Y4 or 35W4 Rectifier.

POWER SUPPLY 110-120 Volts AC-DC

TUNING RANGE—BROADCAST 540-1725KC

RATING .240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screw-driver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD. to reduce hum modulation.
200MFD.	High side to ext. ant. lead. Low side to chassis.	1725KC	"	"	A5	Adjust for maximum output.
200MFD.	"	1400KC	Tune for maximum output.	"	A6	" " " "

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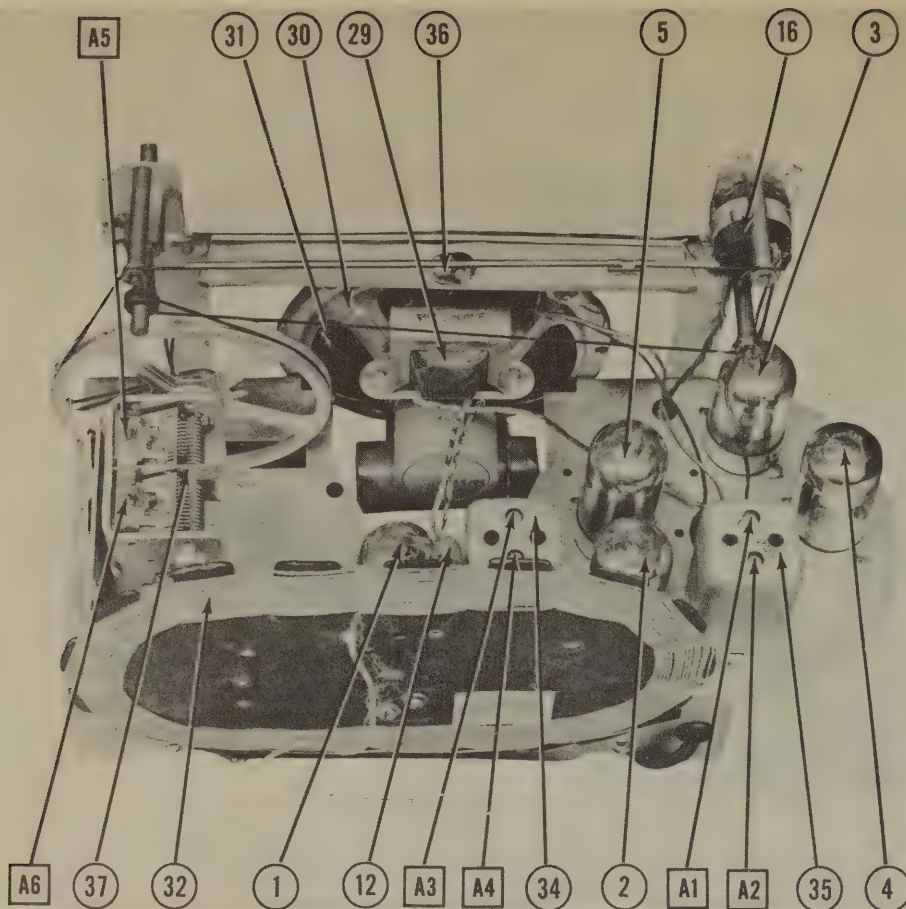
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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

SIMPSON
MODEL MV2

CHASSIS—TOP VIEW



ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		SIMPSON PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1A Converter		1437	1437	8AL	
B		12BE6	12BE6	7CH	
2A IF Amp.		14A7	14A7	8V	
B		12BA6	12BA6	7CC	
3A Det.-AVC-AF		14B6	14B6	8W	
B		12AT6	12AT6	7BT	
4A Power Output		50A5	50A5	6AA	
B		50B5	50B5	7BZ	
5A Rectifier		35Y4	35Y4	5AL	
B		35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		SIMPSON PART No.	AEROVOX PART No.	CORNELL-COILIER PART No.	MALLORY PART No.	
6A	40 CAP.	CO127	40-150	EZ42215	TN129	Filter - Red
B	20 CAP.		20			" - Blue
C	20 CAP.		20			" - Blue
7	.02 CAP.	CO128	684-02	DT6S2	TP412	Line Filter
8	.02 CAP.	CO128	684-02	DT6S2	TP412	Output Plate Bypass*
9	.02 CAP.	CO128	684-02	DT6S2	TP412	TC-12
10	.002 CAP.	CO129	484-002	DT4F1	TP405	Audio Coupling
11	.1 CAP.	CO129	484-1	DT4F1	TP428	TC-22
12	.002 CAP.	CO126	484-002	DT6D2	TP405	AVC Filter
13	100 CAP.	CO124	1468-0001	SW5T1	MC235	Ext. Ant. Isolation
14	200 CAP.	CO124	1468-0002	SW5T2	MC237	Output Grid Filter
15	50 CAP.	CO123	1468-0005	SW5S5	MC225	IF Bypass Vol. Cont.
						Osc. Grid Capacitor

*May be .002 in some models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SIMPSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	500KΩ	PT109-W	MT48	D13-133	M-60-Z	Volume Control
B	500KΩ	Not Req.	Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch		M26	41	SW-A	"

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		SIMPSON PART No.	IRC PART No.	IRC PART No.	
17	20KΩ	REL33	BTS-22K	BTS-22K	Red-Blk.-Or. Oscillator Grid
18	56Ω	REL74	BW-#56	BW-#56	Grn.-Blue-Blk. IF Cathode-See Note 1
19	2.2 Meg.	REL35	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	15 Meg.	REL36	BTS-15 Meg.	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
21	270KΩ	REL38	BTS-270K	BTS-270K	Red-Vi.-Yl. AF Plate Load
22	500KΩ	REL34	BTS-470K	BTS-470K	Grn.-Blk.-Yl. Output Grid
23	180Ω	REL32	BW-#180	BW-#180	Br.-Gray-Br. Output Cathode
24	680Ω	REL31	BTA-680	BTA-680	Blue-Gray-Br. Filter
25	180Ω	REL30	BW-2-180	BW-2-180	Br.-Gray-Br. Pilot
26	330Ω	REL37	BW-#330	BW-#330	Or.-Or.-Br. Pilot Light Shunt-See Note 2
27	150Ω	REL37-A	BW-#150	BW-#150	Br.-Grn.-Br. Surge Limiter-See Note 3
28	15 Meg.	REL36	BTS-15 Meg.	BTS-15 Meg.	Br.-Grn.-Blue AVC Network

Note 1-Used only in models utilizing miniature tubes.
 Note 2-Used only in models utilizing miniature tubes and having serial numbers below 7000.
 Note 3-Used only in model utilizing miniature tubes and having serial number above 7000.

PARTS LIST AND DESCRIPTIONS (Continued) TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	STANCOR PART No.	THORDARN PART No.			
29	20002	3.62	1452	.852	TR139	A-3876	T22345

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	SIMPSON PART No.	JENSEN PART No.	
30	PM	3.62	SP105	ST-107	
31	CONE DIA.	VC DIA.		Mod. PS-V	
31	4-3/4"	1/2"	NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

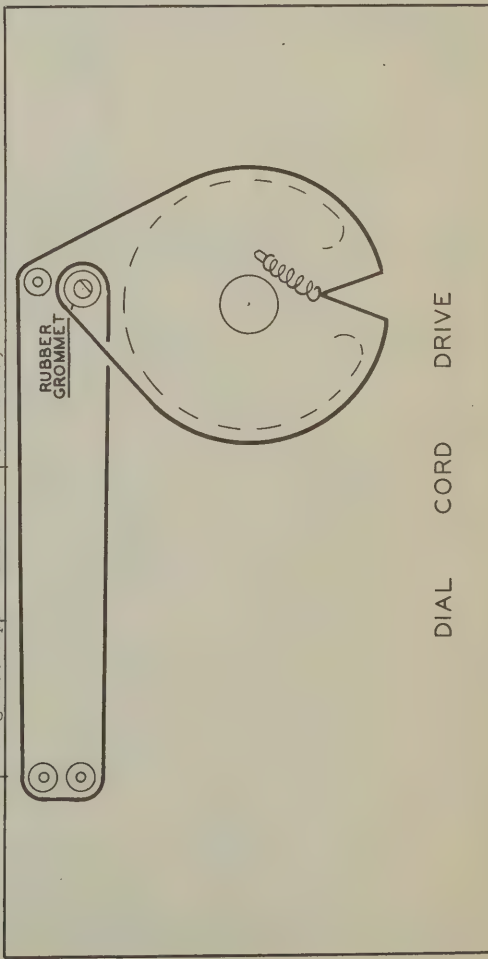
ITEM No.	USE	REPLACEMENT DATA			
		DC RES.	SIMPSON PART No.	MEISSNER PART No.	
32	Loop Ant.	PRI	ANT113	14-1040	
33	Osc. Coil	SEC.	OSC116	16-6658	
34	Input IF	252	IF107	16-6660	
35	Output IF	232	IF108		

DIAL LIGHT

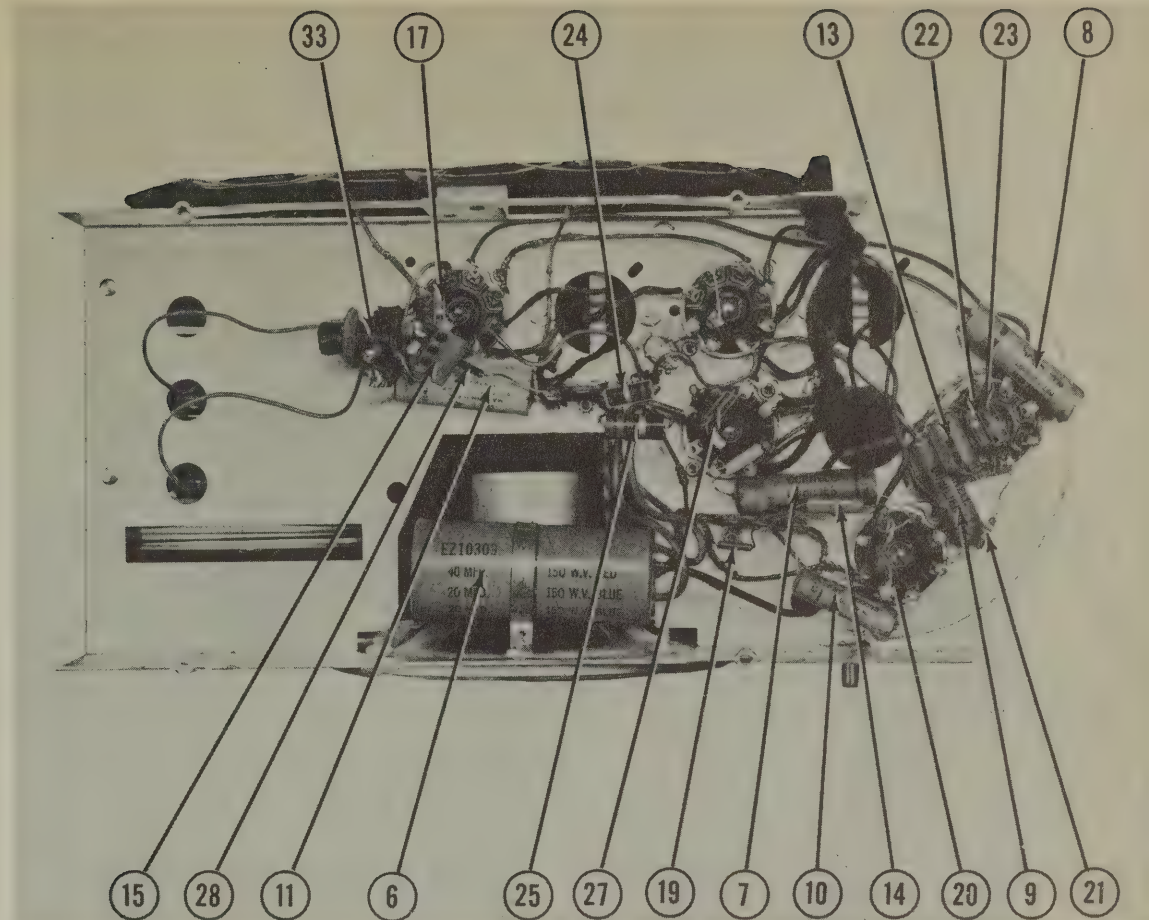
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	SIMPSON PART No.	
36	Bayonet	6-8	0.15	Brown	B110	Type 47

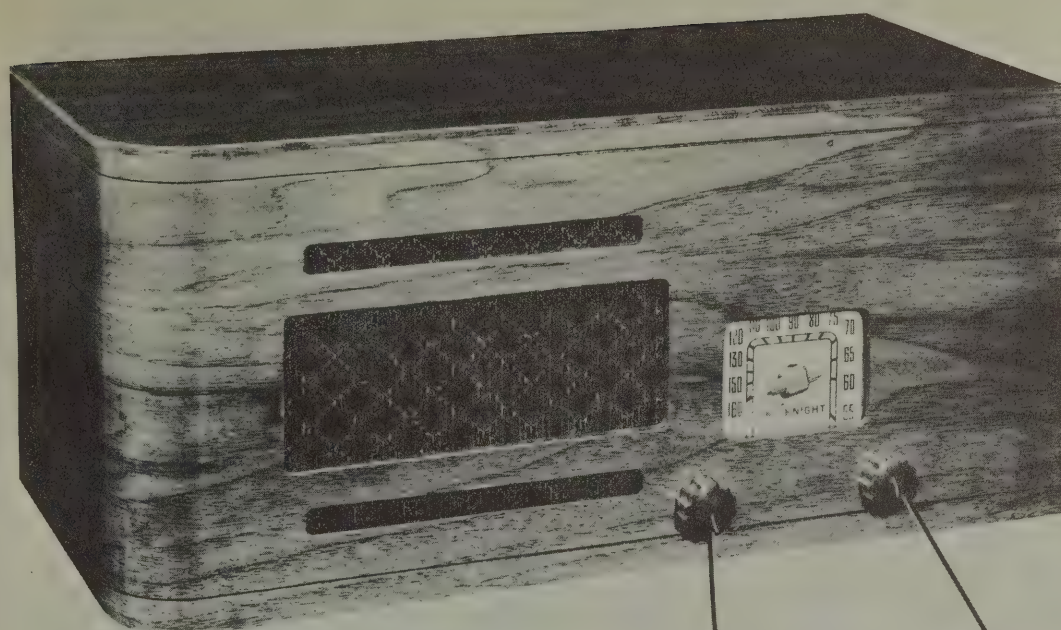
MISCELLANEOUS

ITEM No.	PART NAME	SIMPSON PART No.	NOTES
37	2 Gang Var. Cap	TC106	40-472 MTF, 25-198 MTF



CHASSIS—BOTTOM VIEW





SKY KNIGHT MODEL CB-500-P

TRADE NAME	Sky Knight, Model CB-500-P
SUPPLIER	Butler Bros., Randolph and Canal Sts., Chicago 80, Ill.
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FIVE)	Types, 1R5 Converter, 1T4 IF Amp., 1T4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output.
POWER SUPPLY	1½ Volt "A" Battery & 90 Volt "B" Battery in Pack Form (Eveready 758)
RATING	54MA @ 1.6 Volts DC & 9.6MA @ 92 Volts DC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control at maximum position, Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin 6 (grid) 1R5. Low side to chassis.	455KC	Slugs out all the way.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1600KC	1600KC	"	A5	" " " "
200MMFD	"	"	Tune for maximum output.	"	A6	" " " "
200MMFD	"	1400KC	"	"	A7	" " " "

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PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

SKY KNIGHT
MODEL CB-500-B

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SKY KNIGHT PART No.	STANDARD REPLACEMENT		
1	Conv.	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	IF Amp.	1T4	1T4	6AR	
4	Det.-AVC-AF	1S5	1S5	6AU	
5	Power Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		SKY KNIGHT PART No.	AEROVOX PART No.	CORVELL-CONELLER PART No.	MALLORY PART No.	
6	20 CAP.	FRS150-20	FRS150-20	BR2015	TC45	UT-201
7	.01	484-01	484-01	D74S1	TP421	TC-11
8	.01	484-01	484-01	D74S1	TP421	TC-11
9	.05	484-05	484-05	D74S5	TP426	TC-11
10	.01	484-01	484-01	D74S1	TP421	TC-11
11	.05	484-05	484-05	D74S5	TP426	TC-11
12	.05	484-05	484-05	D74S5	TP426	TC-11
13	.05	484-05	484-05	D74S5	TP426	TC-11
14	.05	484-05	484-05	D74S5	TP426	TC-11
15	.05	484-05	484-05	D74S5	TP426	TC-11
16	.05	484-05	484-05	D74S5	TP426	TC-11
17	.05	484-05	484-05	D74S5	TP426	TC-11
18	.05	484-05	484-05	D74S5	TP426	TC-11
19	.05	484-05	484-05	D74S5	TP426	TC-11

CONTROLS

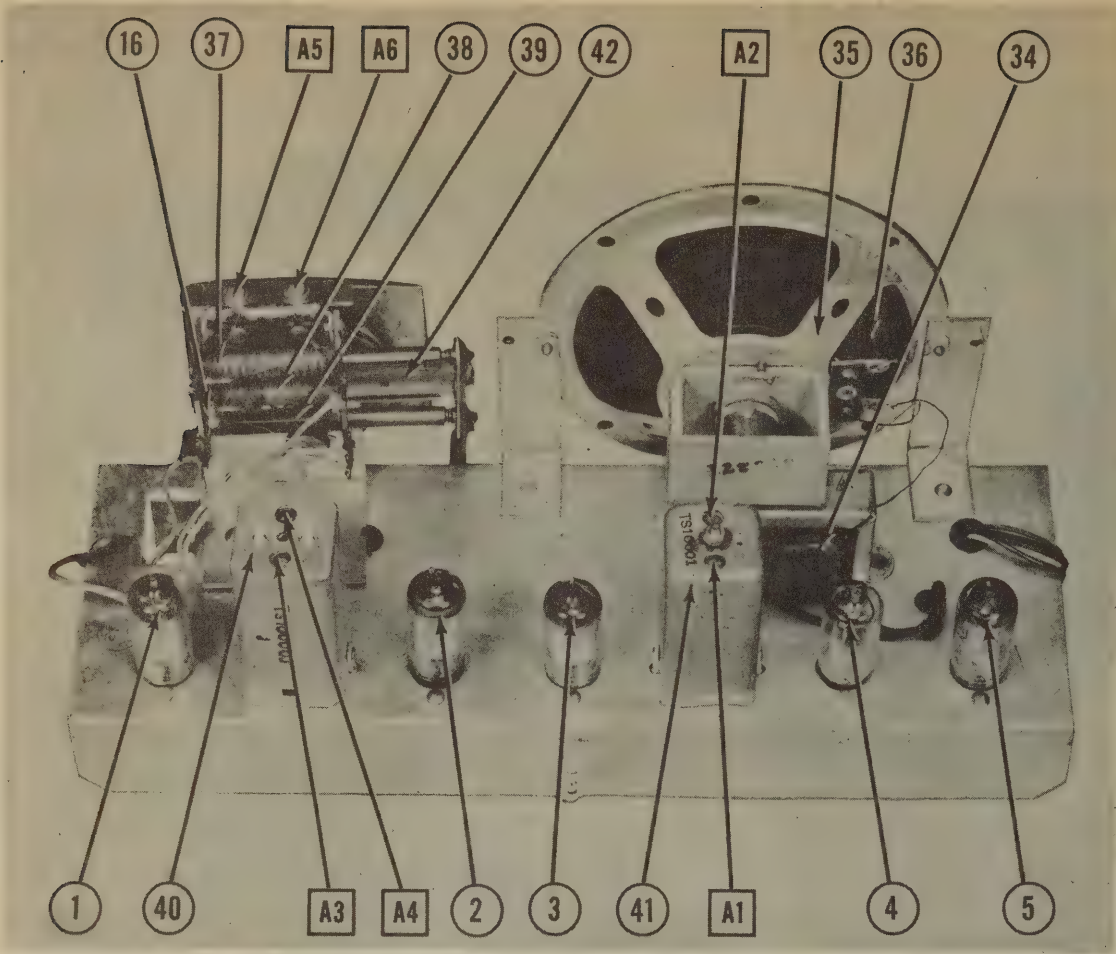
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SKY KNIGHT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
20A	1 Meg. B Shift	MR53	MR53	D13-137	M-63-Z	Volume Control
C	Switch	Not Req.	Not Req.	A	Not Req.	Attach to 20A per instructions
					SW-A2	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		SKY KNIGHT PART No.	SKY KNIGHT PART No.	IRC PART No.	
21	100KΩ			BTS-100K	Br.-Blk.-Vl. Oscillator Grid
22	100KΩ			BTS-100K	Br.-Blk.-Vl. AVC Network
23	22KΩ			BTS-22K	Red-Red-Or. Converter Screen Dropping
24	4700Ω			BTS-4700	Vl.-Vl.-Red IF Plate Load
25	2.2 Meg.			BTS-2.2 Meg.	Red-Red-Grn. 2nd IF Grid
26	2.2 Meg.			BTS-2.2 Meg.	Red-Red-Grn. AVC Network
27	10KΩ			BTS-10K	Br.-Blk.-Or. Screen Dropping
28	10 Meg.			BTS-10 Meg.	Br.-Blk.-Blue AF Grid
29	4.7 Meg.			BTS-4.7 Meg.	Vl.-Vl.-Grn. AF Screen Dropping
30	1.2 Meg.			BTS-1.2 Meg.	Br.-Red-Grn. AF Plate Load
31	3.0 Meg.			BTS-3.0 Meg.	Or.-Blk.-Grn. Output Grid
32	390Ω			BW-3-390	Or.-White-Br. Bias
33	4700Ω			BTS-4700	Vl.-Vl.-Red Output Screen Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		SKY KNIGHT PART No.	STANCOR PART No.	THORDARN PART No.	
34	6000Ω 3.5Ω 260Ω		TO-10002	A-3879	T22547



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

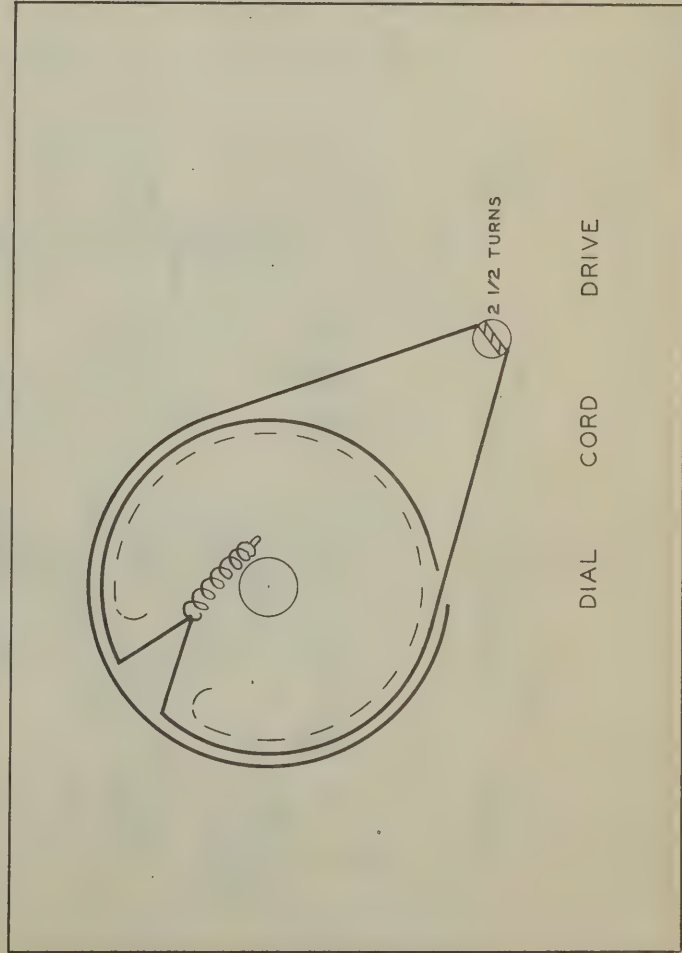
ITEM No.	RATINGS	REPLACEMENT DATA	INSTALLATION NOTES
	FIELD	SKY KNIGHT PART No.	JENSEN PART No.
35	VC IMP.		
	3.5Ω		
36	CONE DIA.		
	4-3/4"		
	VC DIA.		
	1/2"		
		NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.	

R F COILS

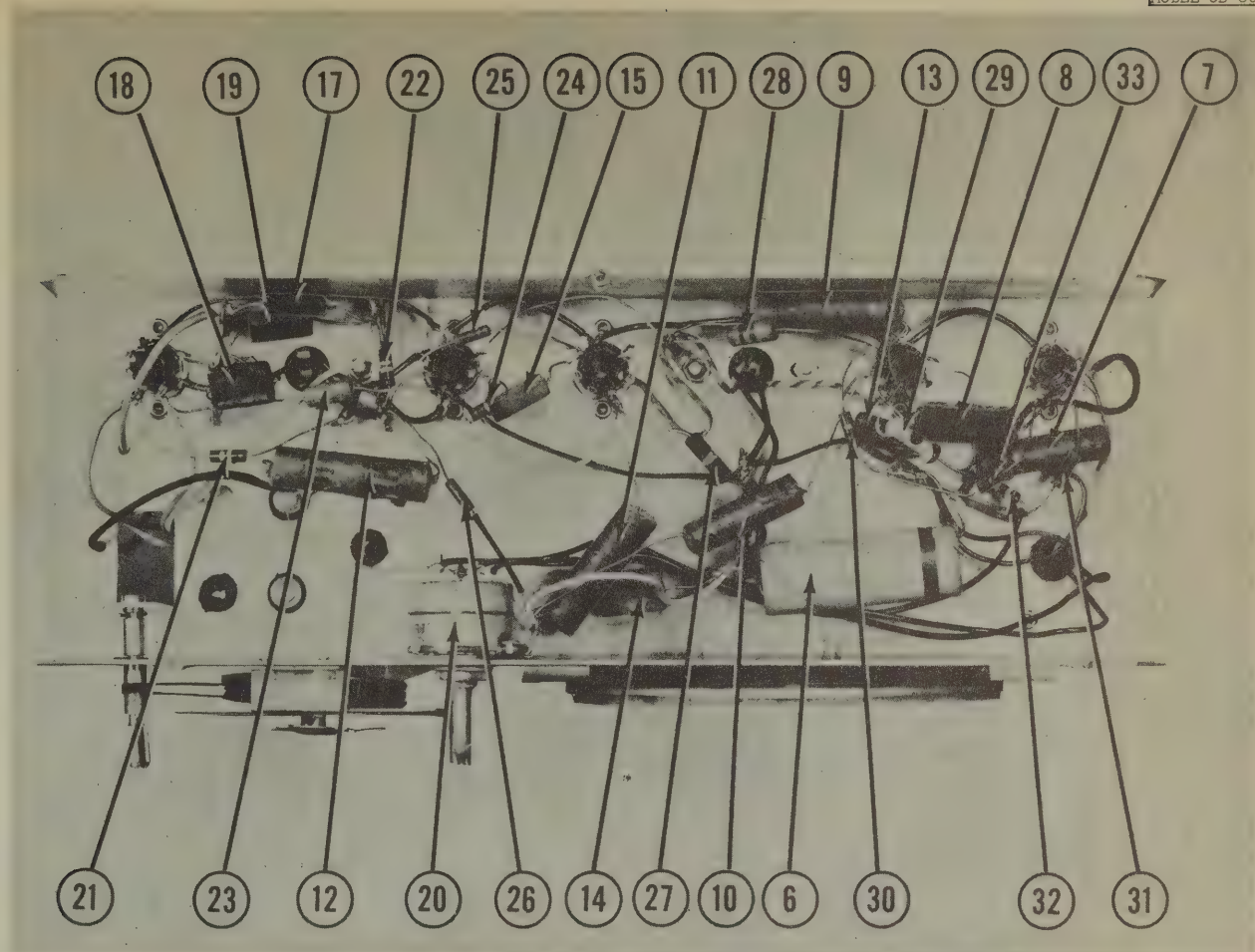
ITEM No.	USE	DC RES.	REPLACEMENT DATA	
		PRI.	SEC.	
37	Ant. Coil		5.5Ω	
38	Osc. Coil		15Ω	
39	Osc. Shunt Coil		2Ω	
40	Input IF	28Ω	8Ω	
41	Output IF	19Ω	19Ω	
			TS10000J	16-6658
			TS10001	16-6660

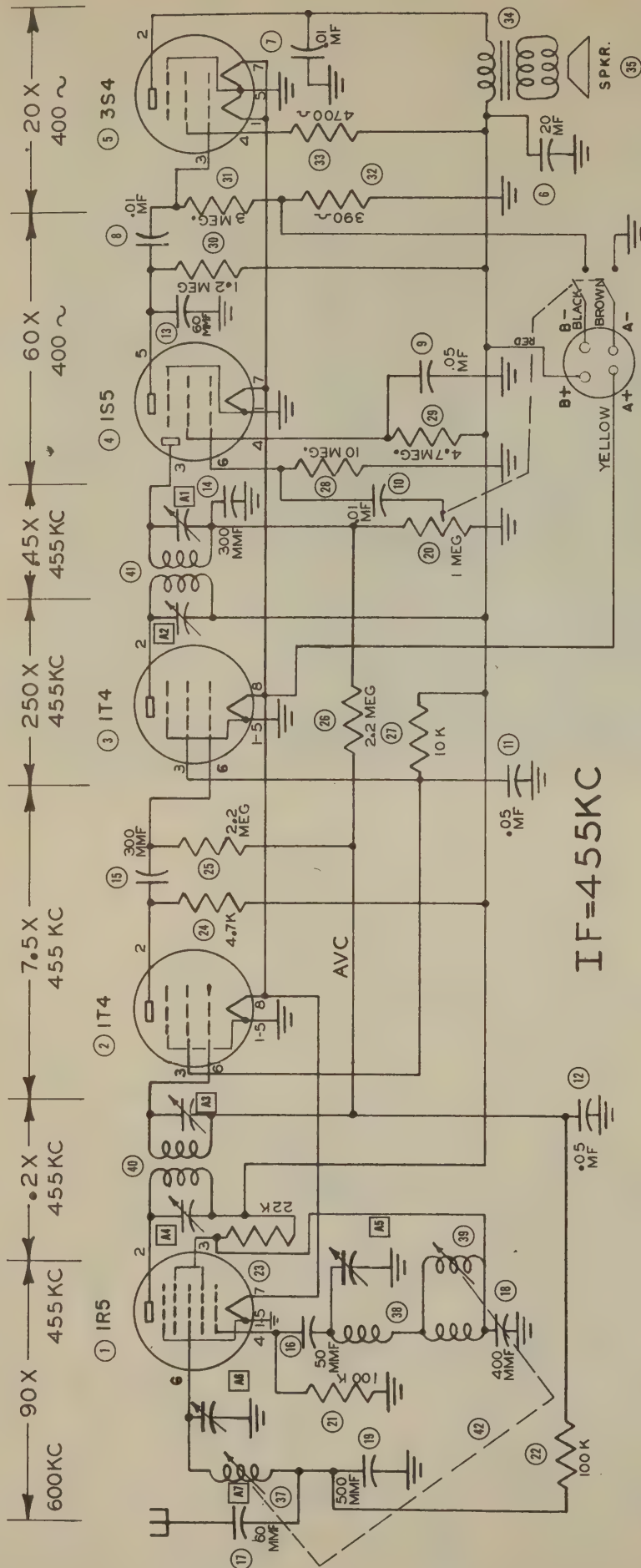
MISCELLANEOUS

ITEM No.	PART NAME	SKY KNIGHT PART No.	NOTES
42	Tuner Assy.		



CHASSIS—BOTTOM VIEW





IF=455KC

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	IR5	OV.	84VDC	48VDC	15VDC	OV.	OV.	16VDC
2	1T4	OV.	72VDC	65VDC	84VDC	OV.	OV.	16VDC
3	1T4	OV.	84VDC	65VDC	OV.	OV.	OV.	16VDC
4	1S5	OV.	OV.	11VDC	70VDC	86VDC	OV.	16VDC
5	3S4	16VDC	82VDC	34VDC	79VDC	OV.	82VDC	16VDC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	IR5	*	78K Ω	100K Ω	94K Ω	*	3.2 MEG Ω	*
2	1T4	*	84K Ω	90K Ω	78K Ω	*	3.2 MEG Ω	*
3	1T4	*	78K Ω	90K Ω	1NF.	*	5 MEG Ω	*
4	1S5	*	1NF.	1 MEG Ω	5 MEG Ω	1.2 MEG Ω	10 MEG Ω	*
5	3S4	*	65K Ω	25 MEG Ω	70K Ω	*	65K Ω	*

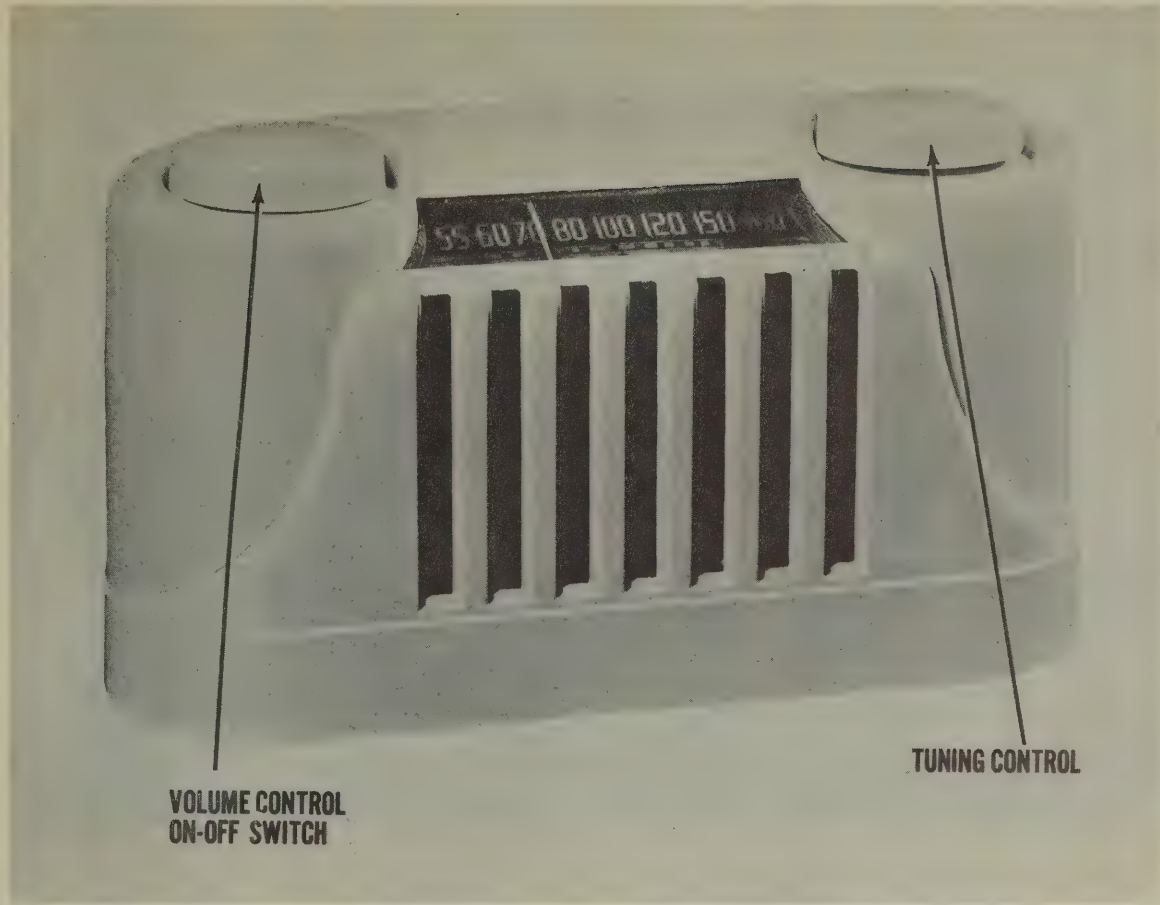
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

477-31

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

STEWART - WARNER
MODELS A51T1, A51T2, A51T3, A51T4



STEWART - WARNER
MODELS A51T1, A51T2, A51T3, A51T4

STEWART-WARNER MODEL A51T3

TRADE NAME	Stewart-Warner, Models A51T1 (Code 9020-A), A51T2 (Code 9020-B), A51T3 (Code 9020-C), A51T4 (Code 9020-D)		
MANUFACTURER	Stewart-Warner Corp., 1826 Diversey Pkwy., Chicago, Ill.		
TYPE SET	AC-DC Operated Superheterodyne Receiver-Self Contained Loop Antenna		
TUBES (FIVE)	Types, 12BE6 1st Det.-Osc., 12BA6 IF Amp., 12AT6 2nd Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.		
POWER SUPPLY	110-120 Volts AC-DC		
TUNING RANGE-BROADCAST	540-1600KC	SHORT WAVE	.240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS-READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer 1/8" to left of 55 mark on dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control at maximum position. Output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
200MMFD	High side to stat. of large section of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1500KC	1500KC	"	A5	Adjust for maximum output.
200MMFD	"	"	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

STEWART-WARNER MODELS
AS1T1, AS1T2, AS1T3, AS1T4

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		STEWART-WARNER PART No.	STANDARD REPLACEMENT		
1	1st Det.-Osc.	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7CC	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BZ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA			IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	STEWART-WARNER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6	20	150	504431	FRS150-20	TC45	Filter
7	20	150	504431	FRS150-20	BR2015	Line Filter
8	.05	400	504444	484-05	TP426	Output Plate Bypass
9	.01	400	504449	484-01	TP421	Audio Coupling
10	.01	150	504450		ZN181	AVC Filter
11	.004	150	504445		ZN181	Ext. Ant. Coupling
12	.05	400	504444	484-05	TP426	IF Bypass Vol. Cont.
13	.1	400	504446	484-1	TP426	Osc. Grid Capacitor Cer.
14	.004	400	502156	484-04	TP407	Fixed Trimmer Cer.
15	250	500	502271	1468-00025	MC240	
16	250	500	504434	1468-00025	MC240	
17	50	500	504434			
18	10	500	502295			

CONTROLS

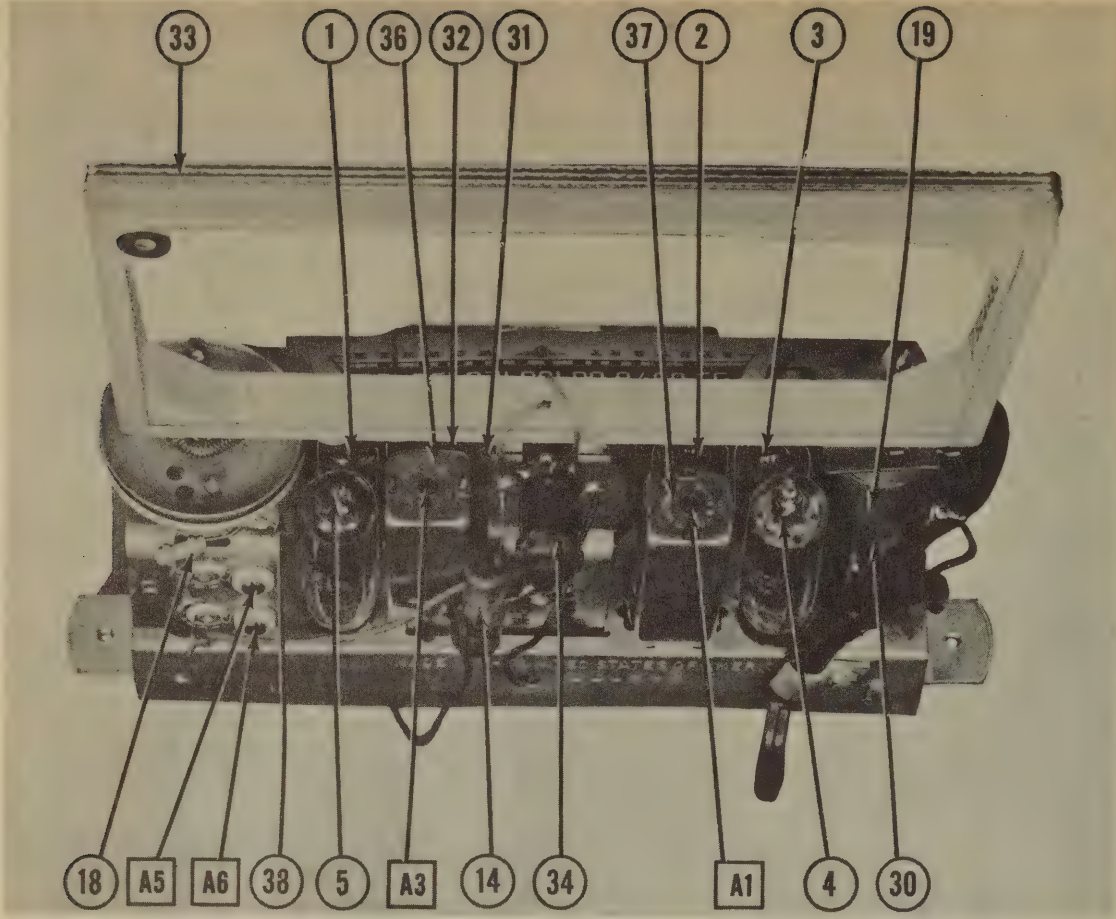
ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	STEWART-WARNER PART No.	MALLORY PART No.	IRC PART No.	
19A	1 Meg.	1	504391	MK402	DI3-137	Volume Control
B	Shunt		Not Req.	Not Req.	E	Attach to 19A per instructions
C	Switch			M26	41	

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	STEWART-WARNER PART No.	IRC PART No.	
20	22K	1/3	504440	BTS-22K	Red-Red-Or. Oscillator Grid
21	220K	1/3	504435	BTS-220K	Red-Red-Yl. Line Isolation
22	82K	1/2	504436	BW-82	Gray-Red-Blk. IF Cathode
23	2.2 Meg.	1/3	504438	BTS-2.2 Meg.	Red-Red-grn. AVC Network
24	3.3 Meg.	1/3	504439	BTS-3.3 Meg.	Or.-Or.-grn. AF Grid
25	470K	1/3	504438	BTS-470K	Yl.-Vl.-Yl. AF Plate Load
26	470K	1/3	504438	BTS-470K	Yl.-Vl.-Yl. Output Grid
27	150K	1/2	504437	BW-150	Br.-Grn.-Br. Output Cathode
28	150K	1/2	504442	BTA-1500	Br.-Grn.-Red. Filter
29	33K	1/2	502574	BW-33	Or.-Or.-Blk. Rectifier Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	STEWART-WARNER PART No.	THORDARN PART No.	
30	25000	3.5Ω	504454		



PARTS LIST AND DESCRIPTIONS (Continued) SPEAKER

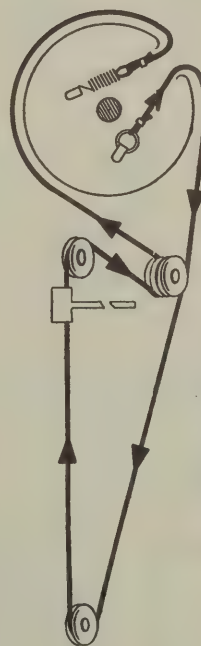
ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		STEWART-WARNER PART No.	JENSEN PART No.	
31	FIELD PM 3-50			
32	VC DIA. 3-3/8	504455		
		NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	STEWART-WARNER PART No.	MEISSNER PART No.
33	Loop Ant.		00	504453	
34	Ant. Coupling	.30	1-50	504451	
35	Osc. Coil	10	80	504458	
36	Input IF	190	190	504392	16-6668
37	Output IF	190	190	504392	16-6669

MISCELLANEOUS

ITEM No.	PART NAME	STEWART-WARNER PART No.	NOTES
38	2 Gang Var. Cap. Dial Scale Pointer Dial Window	504390 504505 505099 504544 504472	37-503 MMF. 29-196 MMF Models 51T2 & 51T3 Models 51T4

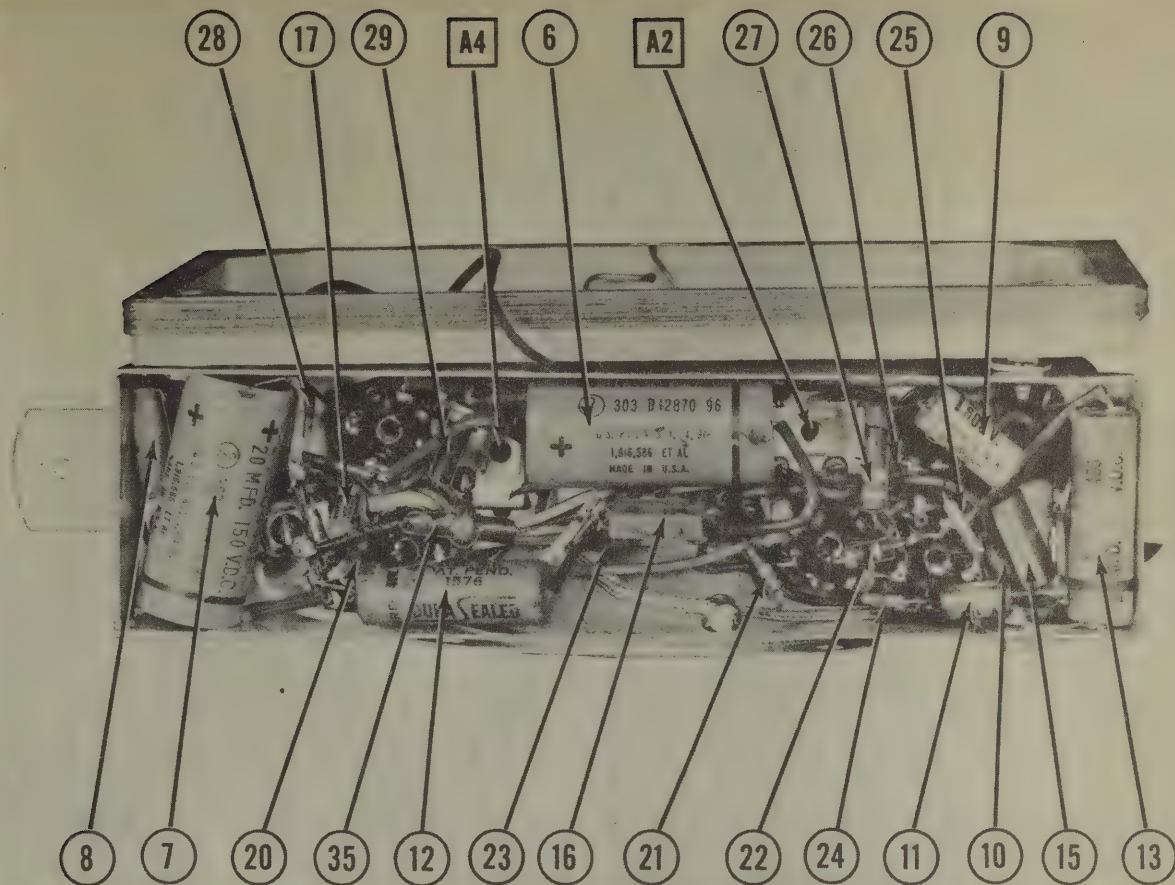


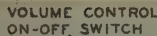
DIAL AND POINTER DRIVE CORD ARRANGEMENT

To string dial cord, turn the drive drum to maximum clockwise position and use the following parts:

- 119087 Ring for dial cord
- 114955 Clip on end of cord
- 117057 Cord (2 feet required)
- 505161 Tension Spring

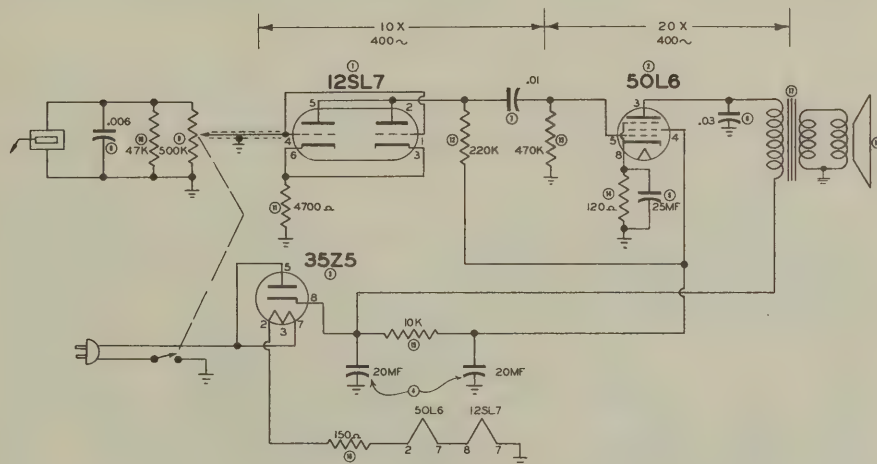
CHASSIS—BOTTOM VIEW





SWANK MODEL ER61

TRADE NAME	Swank, Model ER61
MANUFACTURER	Lindex Corp., 602 East 23rd St., New York, N.Y.
TYPE SET	AC Operated Portable Phono with 3 Tube Amplifier & Speaker.
TUBES(THREE)	Types, 12SL7GT AF Amp., 50L6GT Power Amp., 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .230 Amp. @ 117 Volts AC



477-33

VOLTAGE READINGS									
ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	12SL7GT	OV.	50VDC	11VDC	OV.	50VDC	11VDC	OV.	13VAC
2	50L6GT	OV.	58VAC	125VDC	105VDC	OV.	OV.	13VAC	5.8VDC
3	35Z5GT	OV.	82VAC	87VAC	OV.	117VAC	OV.	117VAC	135VDC

RESISTANCE READINGS									
ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	12SL7GT	40K Ω	250K Ω	4000 Ω	40K Ω	250K Ω	4000 Ω	0 Ω	15 Ω
2	50L6GT	INF.	54 Ω	30K Ω	40K Ω	405K Ω	INF.	15 Ω	105 Ω
3	35Z5GT	INF.	190 Ω	200 Ω	INF.	225 Ω	INF.	225 Ω	30K Ω

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		SWANK PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	AF Amp. Power Output	12SL7GT	12SL7GT	8BD	
2	Rectifier	50L6GT	50L6GT	7AC	
3		35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		SWANK PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
4A	CAP. 20		PRSA150-20	BRD2215	2N509	TA-220 Filter - Red
B	150		20			
5	25		BR252A			TA-25 Cath. Bypass
6	.03		DT683			TC-13 Output Plate Bypass
7	.01		DT481			TC-11 Audio Coupling
8	.006		684-006	DT6D6	TP409	TC-26 Tone Compensation

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SWANK PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
9A	500KΩ		MR48	DL3-133	M-60-Z	Volume Control
B	Slide Switch		Not Req.	A 41	Not Req.	Attach to 9A per instructions
C	Switch				SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		SWANK PART No.	IRC PART No.	
10	47KΩ		BTS-47K	V1-V1 -Or. Phono Shunt
11	4700Ω		BTS-4700	V1-V1 -Red 1st AF Cathode
12	220KΩ		BTS-220K	Red-Red-V1. 1st AF Plate Load
13	470KΩ		BTS-470K	V1-V1-V1. Output Grid
14	100Ω		BL-1-120	Br.-Red-Br. Output Cathode
15	10KΩ		BTS-10K	Br.-Blk.-Or. Filter
16	150Ω		AB-150	Line Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA		INSTALLATION NOTES
		SWANK PART No.	STANCOR THORDARN PART No.	
17	IMPEDANCE 1800Ω PRI. SEC. 3.9Ω PRI. SEC. 170Ω PRI. SEC. .7Ω		A-3876 T22845	

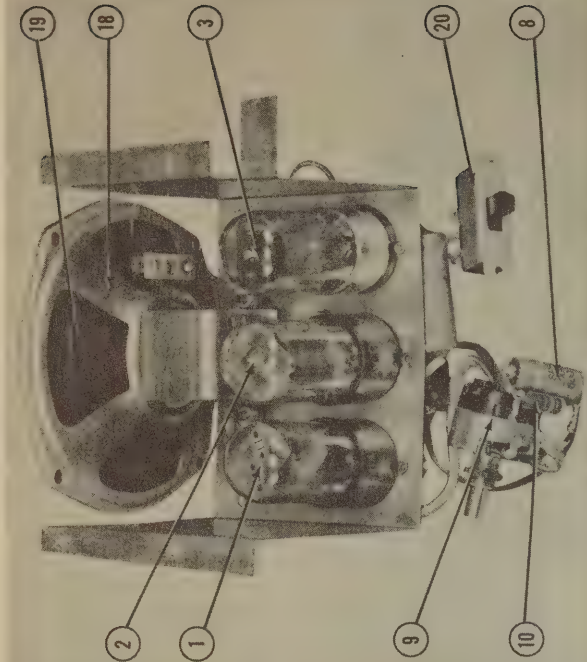
SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		SWANK PART No.	JENSEN PART No.	
18	FIELD PM VC IMP. 3.9Ω VC DIA. 1/2"		ST-1051 Mod. PS-X	Fabricate new mounting clamp and drill new mounting holes.
19	CONED I.A. 4"			NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

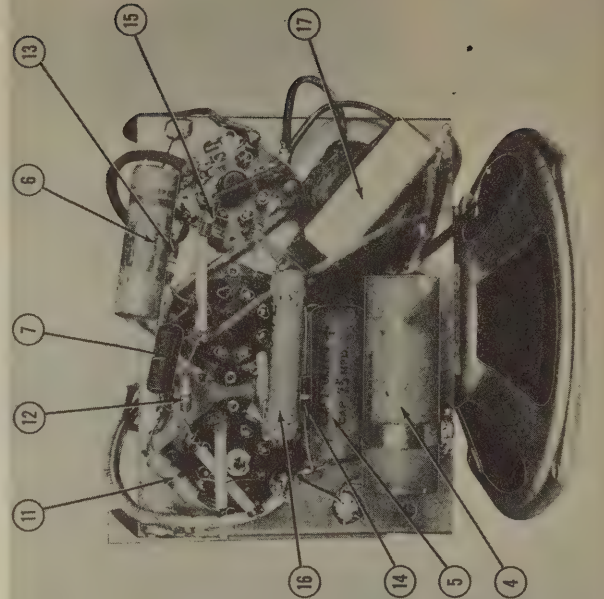
MISCELLANEOUS

ITEM No.	PART NAME	SWANK PART No.	NOTES
20	Switch		Phono Motor Control

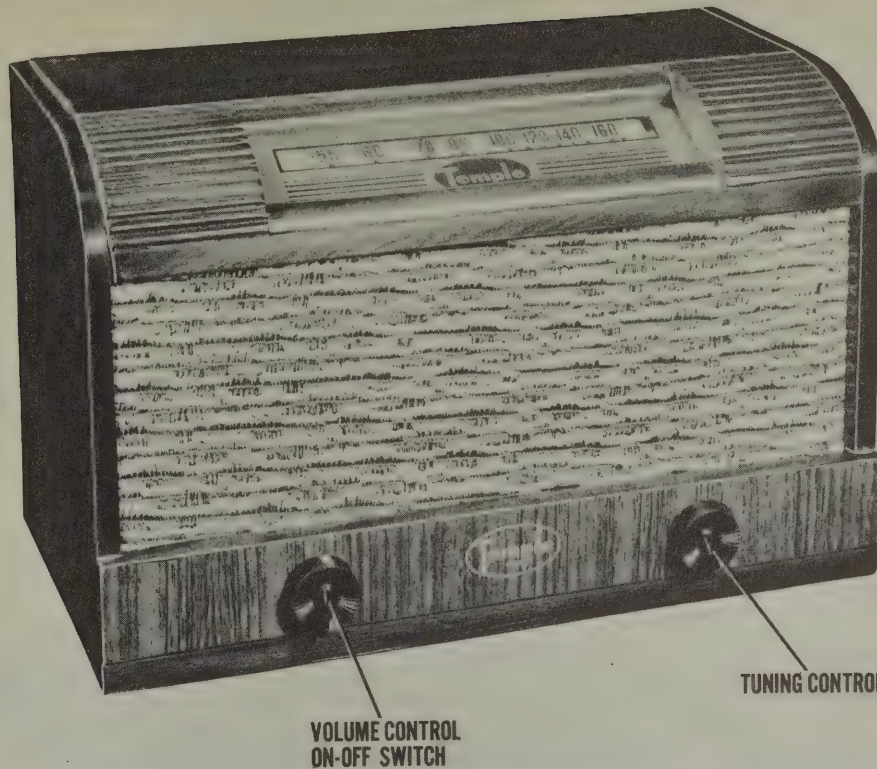
CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



TEMPLE
MODEL G-515



TEMPLE MODEL G-515

TEMPLE
MODEL G-515

TRADE NAME Temple, Model G-515
MANUFACTURER Templetone Radio Mfg. Corp., New London, Conn.
TYPE SET AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (FIVE) Types, 14Q7 or 12SA7 Converter, 14A7 or 12SK7 IF Amp., 14B6 or 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Y4 or 35Z5GT Rectifier.

POWER SUPPLY 110-120 Volts AC-DC
TUNING RANGE—BROADCAST 540-1620KC

RATING .230 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn slugs in completely and set pointer to last reference mark on left end of dial backplate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to Pin 8 (grid) of 14Q7. Low side to chassis.	455KC	Slugs completely out.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD. to reduce hum modulation.
	Loop	1650KC	"	"	A5	Fashion loop of several turns of wire. Radiate signal into loop of receiver and adjust for maximum output.
	"	1500KC	Tune for maximum output.	"	A6	"
	"	600KC	"	"	A7	Rock tuning control and adjust for maximum output. Repeat last three steps for optimum performance.

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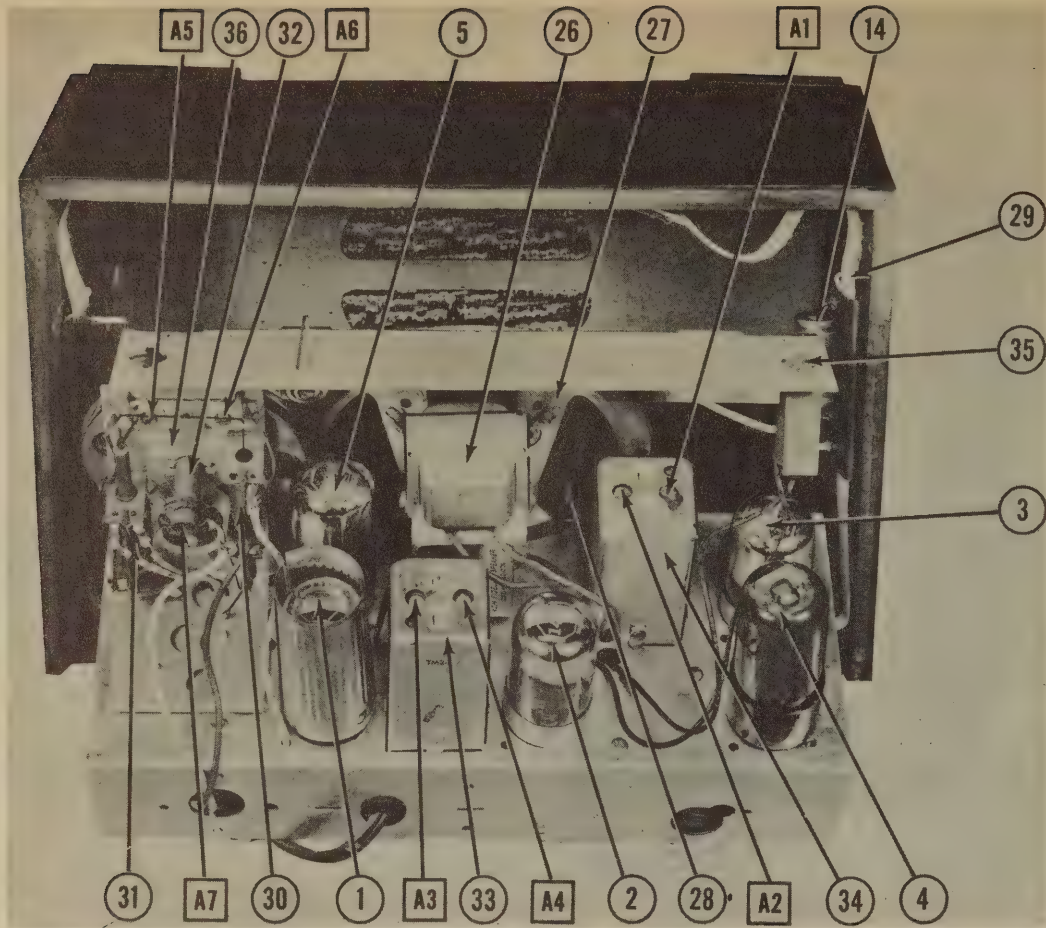
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TEMPLE
MODEL G-515

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	REPLACEMENT DATA			REPLACEMENT DATA		IDENTIFICATION CODES AND INSTALLATION NOTES
	TEMPLE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
6A	80	PRSA150-80-	EZ55515C1	FP116	TA-3031	Filter - Red
B	40	150		ZN514	TA-240	Filter - Blue
C	20	25				Cath. Bypass - Green
7	.1	PR5150-20	DT4P1	TP428	TC-1	Line Filter
8	.02	484-1	DT432	TP428	TC-12	Output Plate Bypass
9	.005	484-02	DT6D5	TP408	TC-25	Audio Coupling
10	.005	684-005	DT6D5	TP408	TC-25	Audio Coupling
11	.1	484-1	DT4P1	TP428	TC-1	AVC Filter
12	.1	484-1	DT4P1	TP428	TC-1	RF Bypass Pwr. Supp.
13	.005	684-005	DT6D5	TP408	TC-25	Osc. Bypass
14	.01	684-01	DT6S1	TP410	TC-11	Ext. Ant. Coupling
15	220	1468-0002	SW5T2	MC237	1FM-32	Audio Plate Bypass
16	100	1468-0001	5W5T1	MC235	1FM-31	Osc. Grid Capacitor

Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	REPLACEMENT DATA			INSTALLATION NOTES
	TEMPLE PART No.	MALLORY PART No.	IRC PART No.	
17A	RP5-2	MK401	D13-133	Volume Control
B	Not Req.	Not Req.	E	Attach to 17A per instructions
C	Switch	M26	41	

RESISTORS

ITEM No.	REPLACEMENT DATA			IDENTIFICATION CODES
	TEMPLE PART No.	MALLORY PART No.	IRC PART No.	
18	22K	RTS-22K	RTS-22K	Red-Red-Or. Oscillator Grid
19	2.2 Meg.	RTS-2.2 Meg.	RTS-2.2 Meg.	Red-Red-Grm. AVC Network
20	6.8 Meg.	RTS-6.8 Meg.	RTS-6.8 Meg.	Blue-Gray-Grm. AF Grid
21	220K	RTS-220K	RTS-220K	Red-Red-Yl. AF Plate Load
22	470K	RTS-470K	RTS-470K	Yl.-Yl.-Yl. Output Grid
23	150K	BW-150	BW-150	Br.-Grm.-Br. Output Cathode
24	1000	BW-1000	BW-1000	Br.-Blk.-Red. Filter
25	39K	BW-39	BW-39	Or.-White-Blk. Rectifier Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE PRI. SEC.	DC RES. PRI. SEC.	PRI. SEC.	TEMPLE PART No.	THORNDEN PART No.	
26	2000 3.5 2000	.8 2000	.8 2000	A-3876*	T22S45*	*Bend mounting tabs down, file out slots and mount on original bracket.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		TEMPLE PART No.	JENSEN PART No.	
27	FIELD VC IMP. PM 3.5Ω	EH6-1	ST-105 Mod. P5-X	
28	CONE DIA. VC DIA. 4-5/8" 1/2"			NOT READILY REPLACEABLE -USE COMPLETE SPEAKER UNIT.

R F COILS

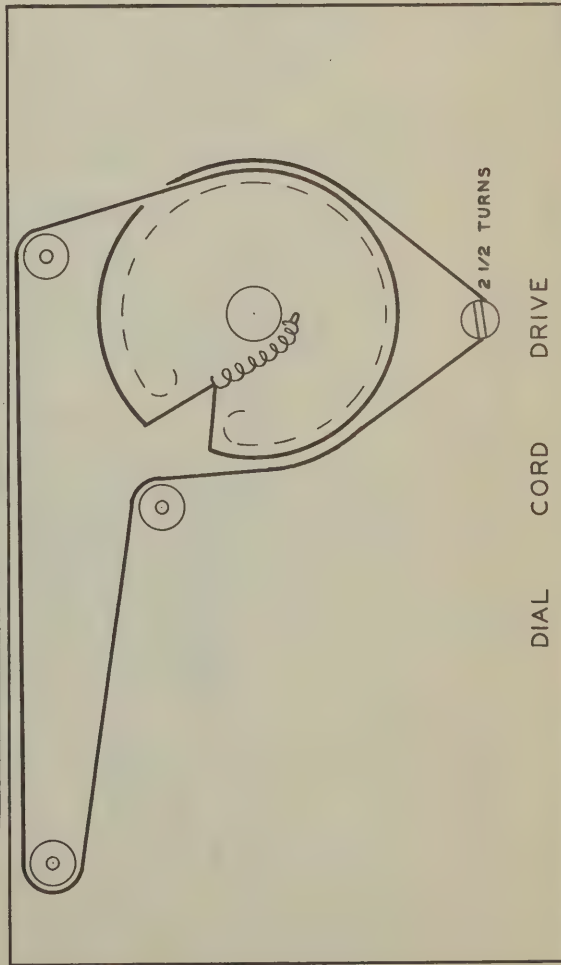
ITEM No.	USE	REPLACEMENT DATA		ITEMS 30, 31, 32 Part of Tuning Assy.
		TEMPLE PART No.	WEISSNER PART No.	
29	Loop Ant.	LL15		
30	Ant. Coil			
31	Osc. Shunt			
32	Coil			
33	Input IF	TM2-1	16-6658	
34	Output IF	TM2-3	16-6670	

DIAL LIGHT

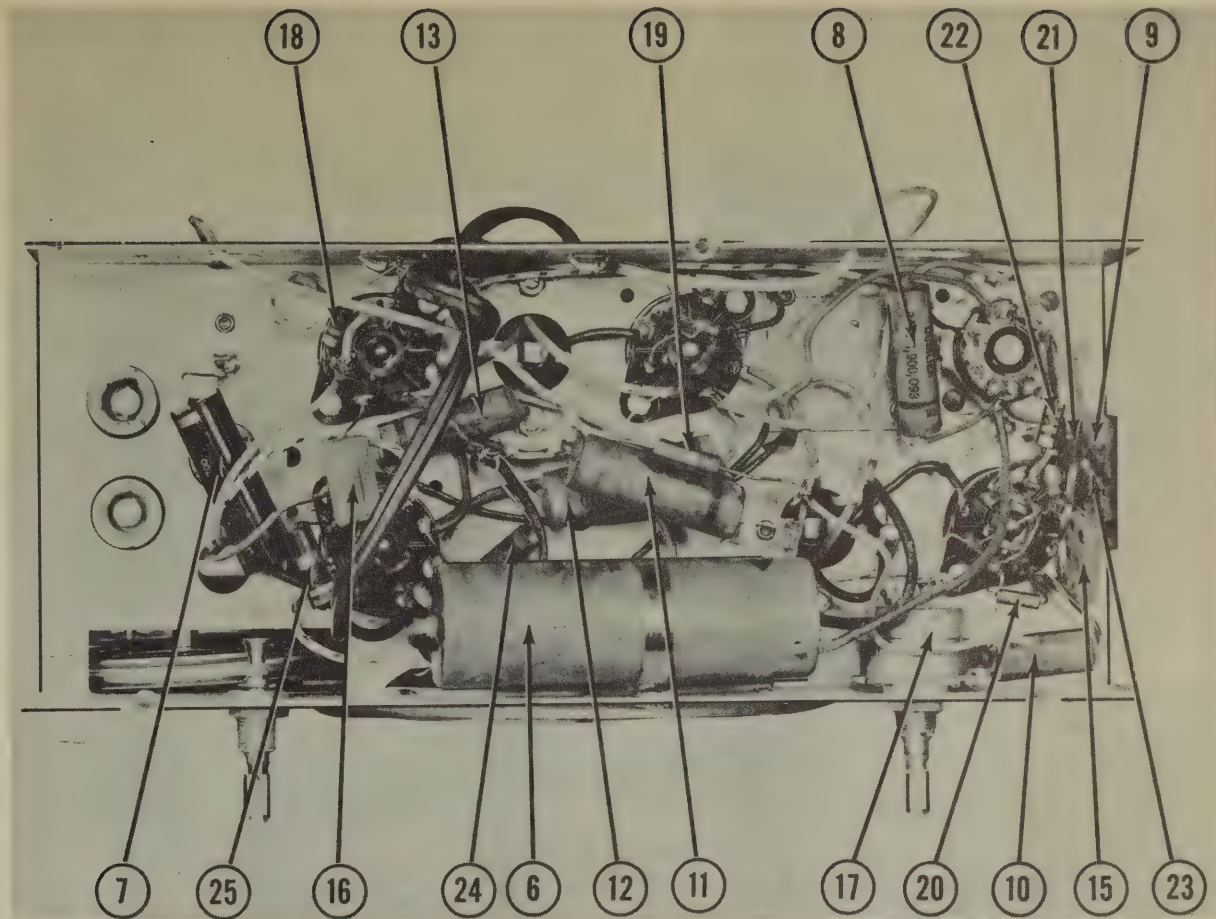
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				TEMPLE PART No.	BEAD COLOR	
35	Bayonet	6-8	0.15		Brown	Type 47

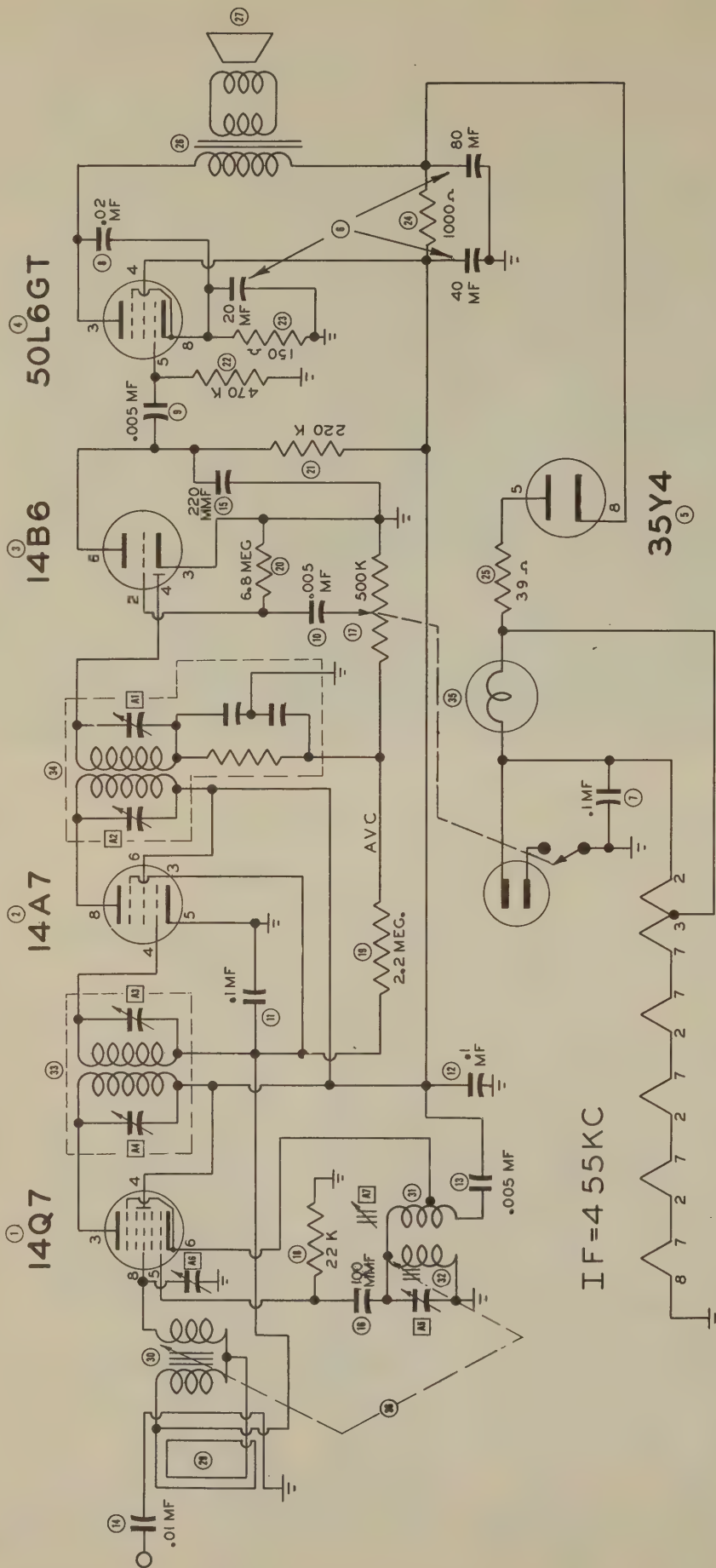
MISCELLANEOUS

ITEM No.	PART NAME	TEMPLE PART No.	NOTES
36	Tuning Assembly		



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	12VAC	83VDC	83VDC	83VDC	83VDC	2VDC	2VDC	23VAC
2	14A7	23VAC	83VDC	83VDC	83VDC	83VDC	0V	0V	33VAC
3	14B6	0V	88VDC	83VDC	83VDC	83VDC	0V	0V	12VAC
4	50L6GT	0V	33VAC	98VDC	83VDC	83VDC	0V	0V	78VAC 52VDC
5	35Y4	117VAC	103VAC	0V	105VAC	1VDC	2VDC	105VDC	78VAC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	12Ω	30KΩ	30KΩ	20KΩ	15Ω	2.4MEG	15Ω	24Ω
2	14A7	24Ω	30KΩ	30KΩ	2.4MEG	0Ω	2.4MEG	0Ω	36Ω
3	14B6	0Ω	250KΩ	68MEG	0Ω	0Ω	4.40KΩ	0Ω	12Ω
4	50L6GT	INF.	36Ω	30KΩ	30KΩ	490KΩ	1MΩ	80Ω	132Ω
5	35Y4	108Ω	140Ω	0Ω	100Ω	8Ω	16Ω	30KΩ	90Ω

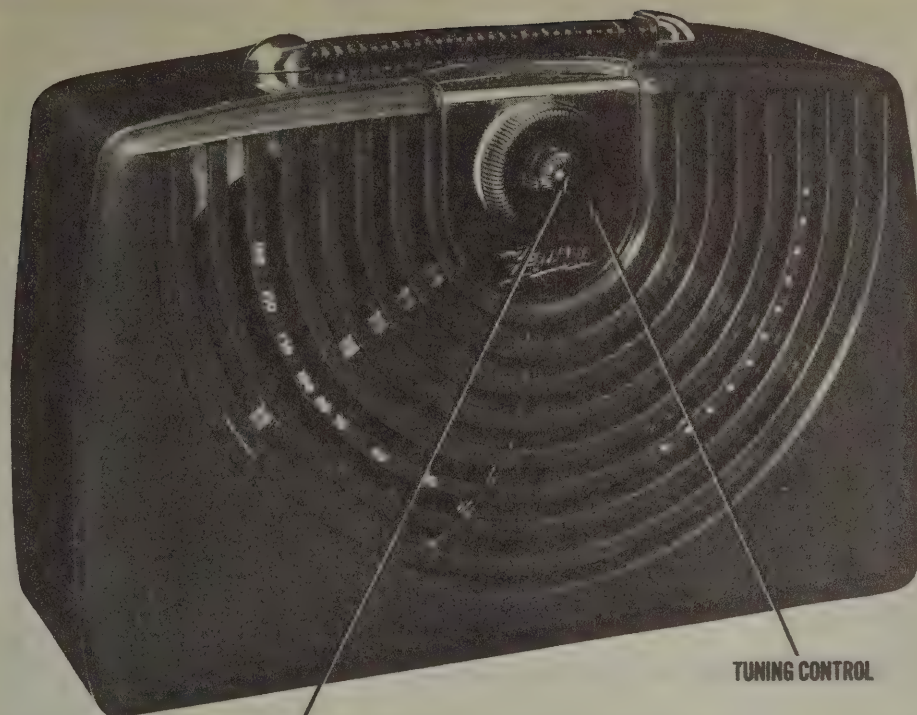
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS 477-34

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ZENITH
MODEL 5G 003 (CH. 5 C 40)



VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

ZENITH MODEL 5G003

TRADE NAME	Zenith, Model 5G003 (Chassis 5C40)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago, 39, Ill.
TYPE SET	Three Power Portable Superheterodyne with Self Contained Loop Antenna
TUBES(FIVE)	Types, 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 1LB4 Power Output, 117Z3 Rectifier.
POWER SUPPLY	105-120 Volts AC-DC or 6 Volts "A" Battery & 75 Volt "B" Battery (In Pack Form)
RATING	.140 Amp. @ 117 Volts AC or 53 MA @ 6.4 Volts DC & 9½ MA @ 79 Volts DC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.5 MFD.	High side to Pin 6 (grid) of 1LA6. Low side to B-.	455KC	600KC	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy antenna to .001 MFD. to reduce hum modulation
	Loop	1600KC	1600KC	"	A5	Fashion loop of one turn of wire and radiate signal into loop of receiver. Adjust for maximum output.
	"	1400KC	Tune for maximum output.	"	A6	"

ZENITH
MODEL 5G 003 (CH. 5 C 40)

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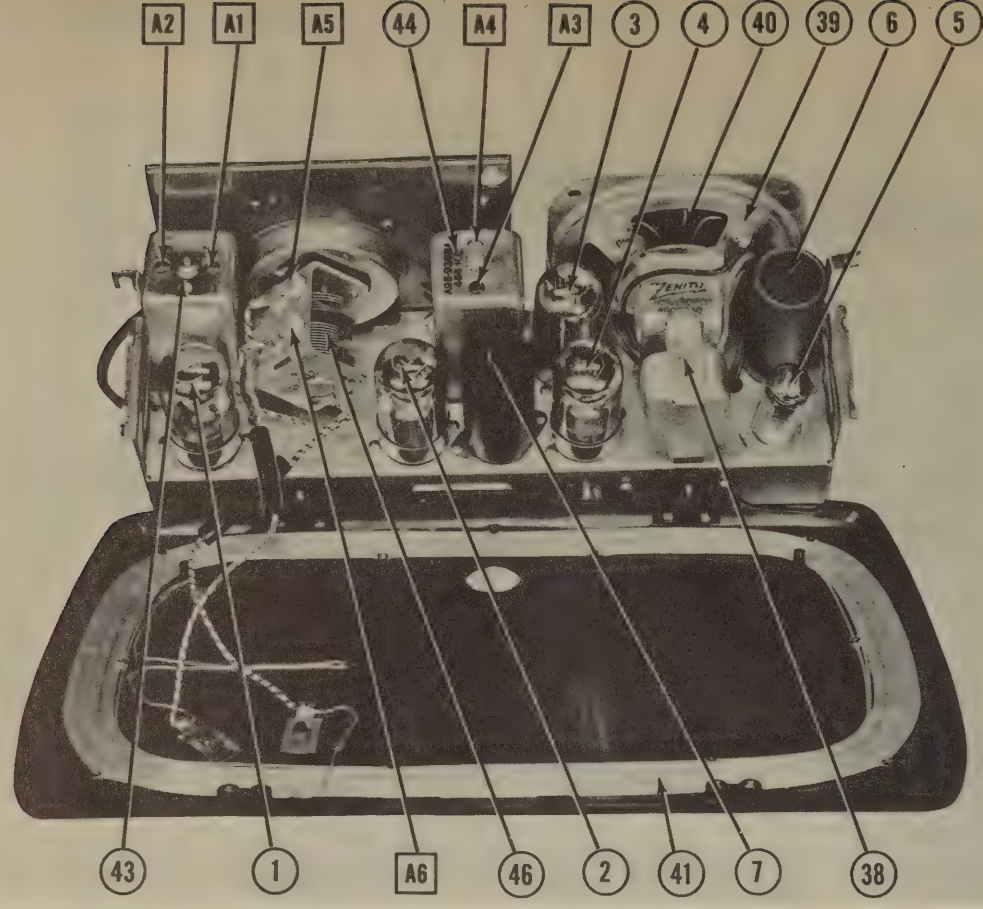
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PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

ZENITH
MODEL S9003

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
6A	40	22-1081	AF88D	UP4215	FP3061	EL-24
B	150	22-1081	AF44D	UP2215	FP217	EL-221
7A	20	22-1014				
B	150	22-1014				
8	.05	20-1014	484-05	DT485	TP426	TC-15
9	.003	22-326	484-003	DT6D3	TC-23	Line Filter
10	.05	20-829	484-05	DT485	TP426	Output Plate Bypass
11	.01	22-196	684-01	DT6S1	TC-15	RF Bypass Pwr. Supp
12	.002	22-492	684-002	DT6D2	TC-11	Audio Coupling
13	.1	20-827	484-1	DT4P1	TP428	TC-22
14	.1	20-827	484-1	DT4P1	TP428	Filament Bypass
15	.05	20-829	484-05	DT485	TP426	Line Isolation
16	.05	20-829	484-05	DT485	TP426	IF Grid Filter
17	.1	20-827	484-1	DT4P1	TP428	AVC Filter
18	.05	20-829	484-05	DT485	TP426	Filament Bypass
19	.05	20-829	484-05	DT485	TP426	Conv. Screen Bypass
20	150	23-470	1468-00015	SW5T15	MC236	Audio Plate Bypass
21	100	22-162	1468-0001	SW5T1	YC235	RF Coupling

1 Do not use bypass section.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		ZENITH PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22	1 Meg. 1	63-1549				Volume Control & Switch

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		ZENITH PART No.	MALLORY PART No.	IRC PART No.	IRC PART No.	
23	220KΩ	63-296				Red-Red-Yl. Converter Grid
24	180KΩ	63-654	BTS-180K			Br.-Gray-Yl. Oscillator Grid
25	220Ω	63-579	BW-4-220			Red-Red-Br. Parasitic Suppressor
26	33KΩ	63-646	BTS-33K			Or.-Or.-Or. Converter Screen Dropping
27	4.7 Meg.	63-802	BTS-4.7 Meg			Yl.-Yl.-Grn. IF Grid
28	2.2 Meg.	63-800	BTS-2.2 Meg			Red-Red-Grn. AVC Network
29	15 Meg.	63-976	BTS-15 Meg.			Br.-Grn.-Blue AF Grid
30	1 Meg.	63-271	BTS-1 Meg.			Br.-Blk.-Grn. AF Plate Load
31	2.2 Meg.	63-600	BTS-2.2 Meg			Red-Red-Grn. Output Grid
32	870Ω	63-1097				Gray-Yl.-Br. Filament String
33	180Ω	63-627	BW-180			Br.-Gray-Br. Bias
34	33Ω	63-1099	BW-33			Or.-Or.-Blk. Filament String
35	2700Ω	63-439	BTS-2700			Red-Yl.-Red Filter
36A	1008Ω	63-1363	ABA-2000			Filament String-See Note
B	1008Ω					
37	140Ω	63-1366	AB-150			Surge Limiter

Note. On IRC replacement set slider at center.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI. SEC.	PRI. SEC.	ZENITH PART No.	STANCOR THORDAR'N PART No.	
38	15000Ω	3.9Ω	620Ω	.8Ω	206-540	A-3856	T22848

SPEAKER

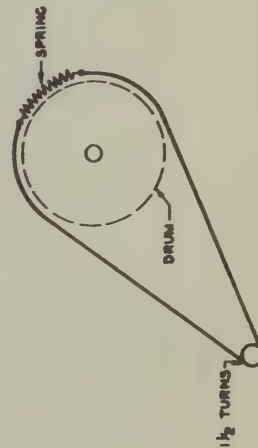
ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	ZENITH PART No.	JENSEN PART No.	
39	PM	3.9Ω	49-540	ST-113	
40	CONE DIA.	1/2"	208-540	Mod. P4-X	

R F COILS

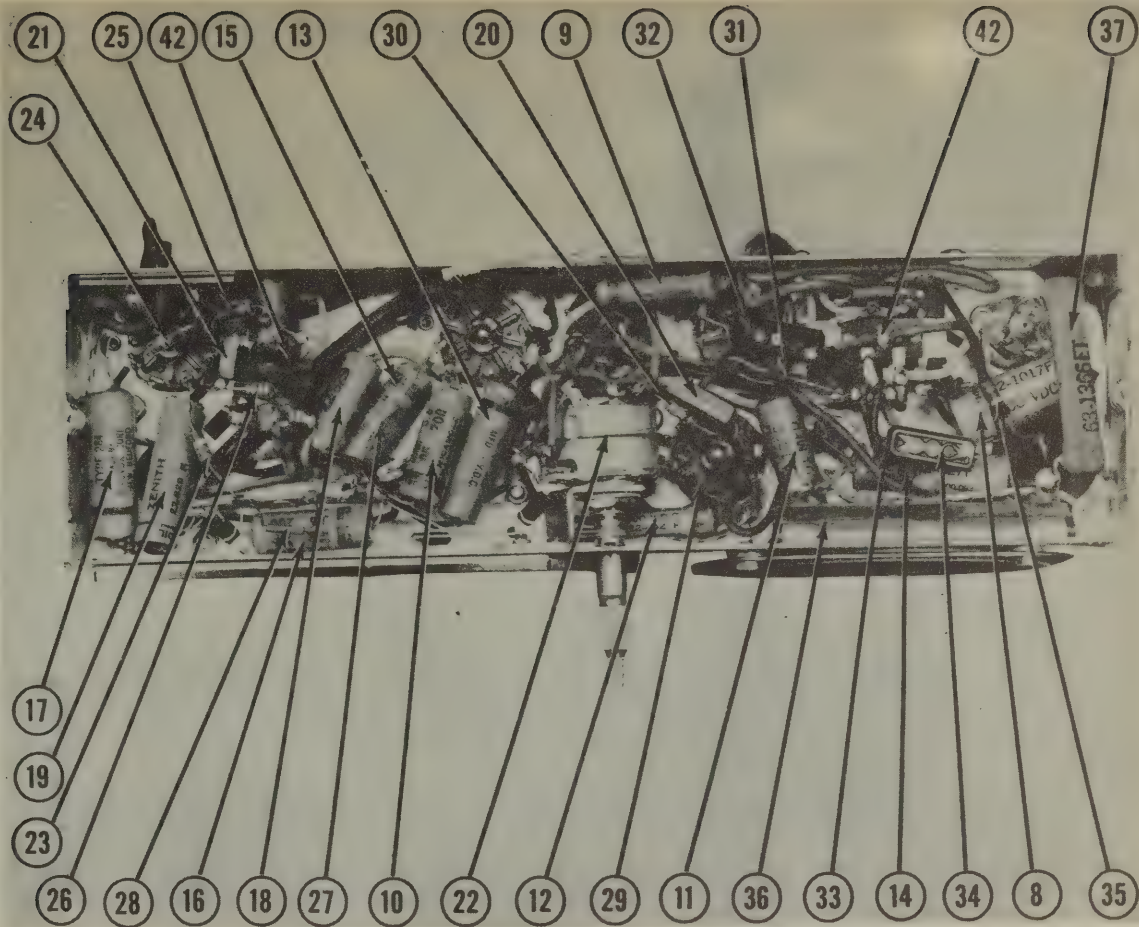
ITEM No.	USE	REPLACEMENT DATA			
		DC RES.	PRI. SEC.	ZENITH PART No.	WEISSNER PART No.
41	Loop Ant.	1.5Ω	1.5Ω	S-11999	
42	Osc. Coil	3.5Ω	9Ω	8-11830	
43	Input IF	25Ω	22Ω	95-837	16-6658
44	Output IF	17Ω		95-838	16-6670

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
45	Switch	85-367	Power Change-Over
46	2 Gang Var. Cap	22-1450	29-473 MTF, 14-101 MTF
	Battery Pack	Z-8394	6 Volt "A" & 75 Volt "B"
	Dial Scale	26-886	
	Dial Plate	57-1167	
	Dial Pointer	59-164	
	Dial Glass	192-99	



CHASSIS—BOTTOM VIEW



VOLTAGE AND RESISTANCE READINGS TAKEN IN A.C.-D.C. POSITION.

Pin	IL 4B	IL 4B	IL 4B
No.	Volt.	Res.	Volt.
1	4.4VDC	5.5K	5.5VDC
2	7.8VDC	4.2K	7.8VDC
3	7.8VDC	4.2K	7.8VDC
4	4.4VDC	170K	4.4VDC
5	5.0VDC	3.3K	5.0VDC
6	1.4VDC	3.3K	1.4VDC
7	0V	INF.	0V
8	1.8VDC	5.5K	1.8VDC

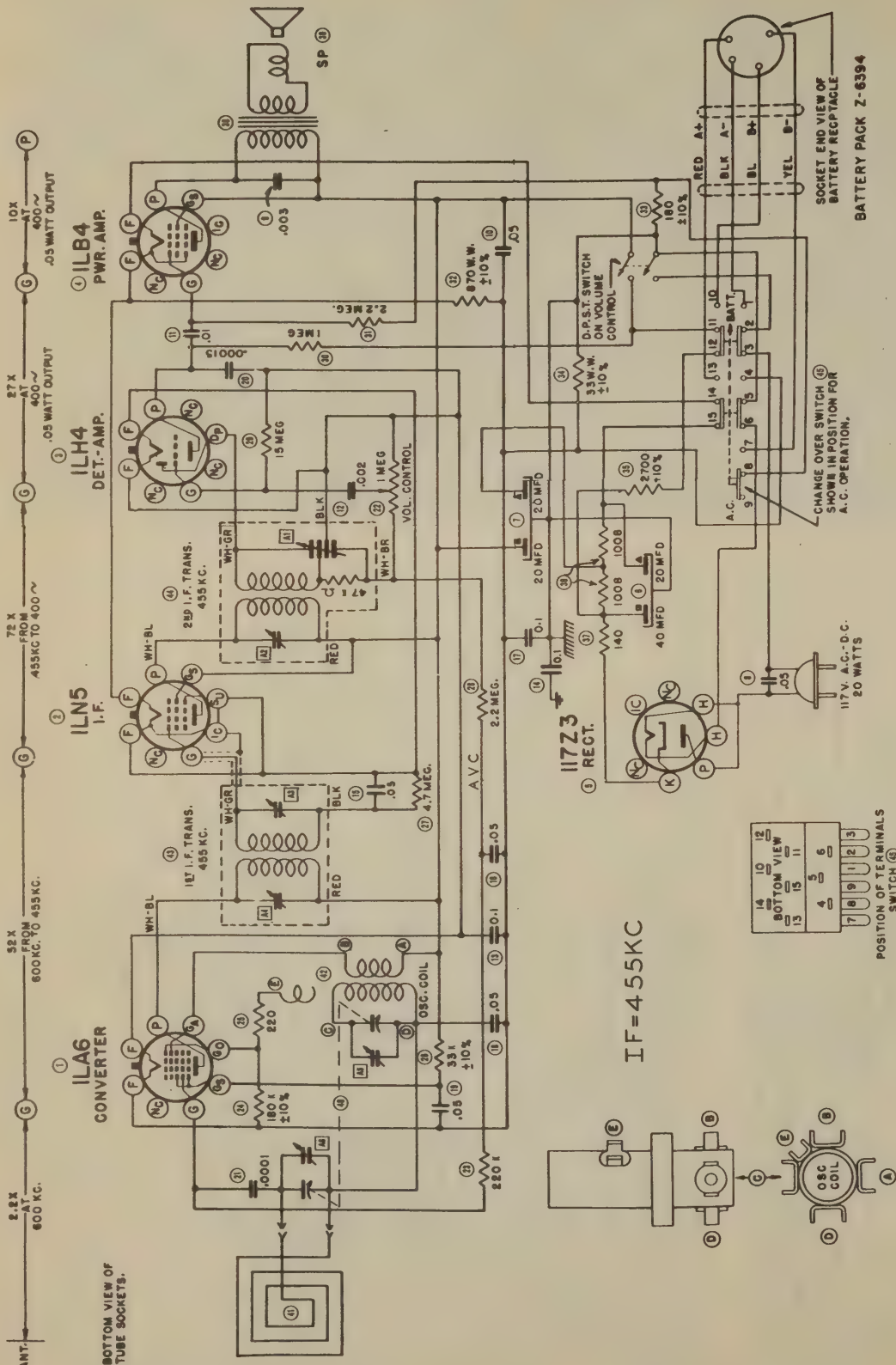
Pin	IL 4B	IL 4B	IL 4B
No.	Volt.	Res.	Volt.
1	4.4VDC	5.5K	5.5VDC
2	7.8VDC	4.2K	7.8VDC
3	7.8VDC	4.2K	7.8VDC
4	4.4VDC	170K	4.4VDC
5	5.0VDC	3.3K	5.0VDC
6	1.4VDC	3.3K	1.4VDC
7	0V	INF.	0V
8	1.8VDC	5.5K	1.8VDC

Pin	IL 4B	IL 4B	IL 4B
No.	Volt.	Res.	Volt.
1	4.4VDC	5.5K	5.5VDC
2	7.8VDC	4.2K	7.8VDC
3	7.8VDC	4.2K	7.8VDC
4	4.4VDC	170K	4.4VDC
5	5.0VDC	3.3K	5.0VDC
6	1.4VDC	3.3K	1.4VDC
7	0V	INF.	0V
8	1.8VDC	5.5K	1.8VDC

*DO NOT USE OHMMETER TO MEASURE
FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE R+
CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION
OF THE FILTER CAPACITORS

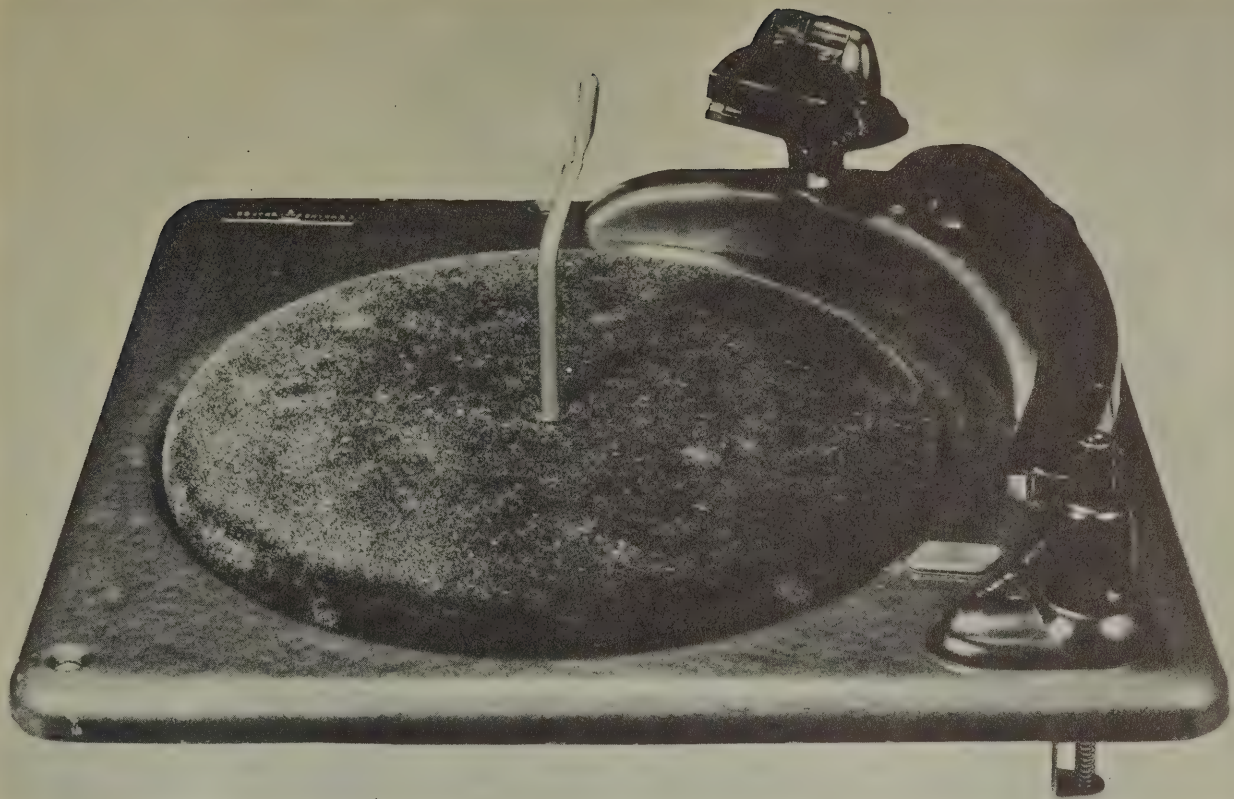
477-35



⏏ DENOTES CHASSIS
⏏ DENOTES COMMON RETURN

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

- The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probe, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to low side of volume control.
- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
 - 2 - Socket connections are shown as bottom views.
 - 3 - Measured values are from socket pin to common negative.
 - 4 - Line voltage maintained at 117 volts for voltage readings.
 - 5 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
 - 6 - Volume control at maximum, no signal applied for voltage measurements.



TOP VIEW

GENERAL INFORMATION

The Webster 56 is a single-post changer designed to play automatically up to twelve 10-inch or ten 12-inch records. The changer will

shut off automatically at the completion of the last record. Manual operation is provided for playing non-standard and home recordings.

MANUFACTURED BY WEBSTER-CHICAGO, 5610 BLOOMINGDALE AVENUE, CHICAGO, ILLINOIS

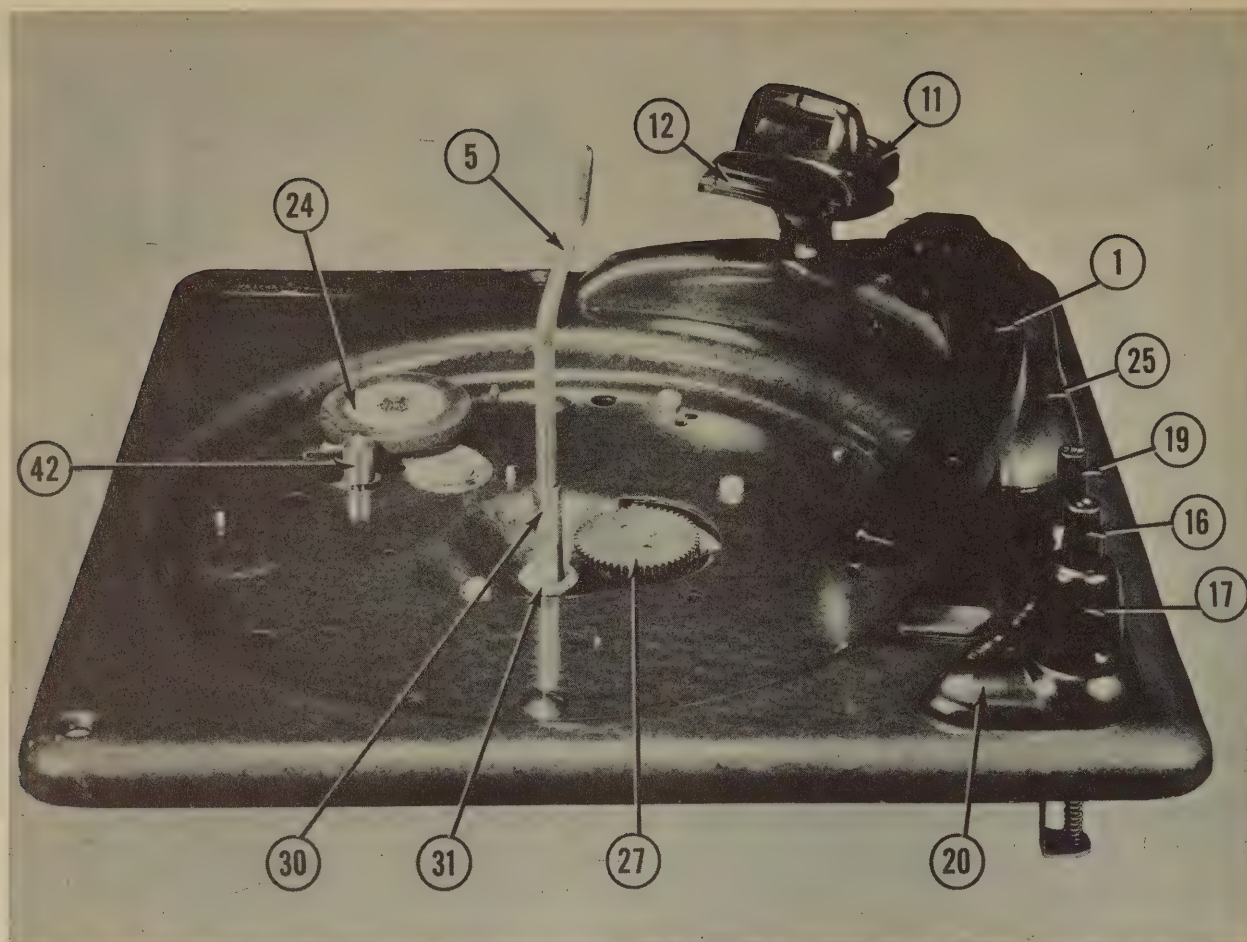
THIS CHANGER HAS BEEN USED IN POSTWAR PRODUCTION BY THE FOLLOWING MANUFACTURERS:

Bendix Radio Division, Bendix Aviation Corp.	Baltimore, Maryland
Trav-Ler Karenola Radio & Television Corp.	Chicago, Illinois
The Magnavox Company	Fort Wayne 4, Indiana
Watterson Radio Mfg. Co.	Dallas, Texas
Ansley Radio Corp.	Trenton, New Jersey
Packard-Bell Co.	Los Angeles, California
Westinghouse Electric Corp.	Sunbury, Pennsylvania
General Electric Company	Bridgeport, Connecticut
Espey Manufacturing Co., Inc.	New York, New York
Musitron Company	Chicago, Illinois
Barr Electric Company	Dallas, Texas
Midland Specialty Co.	El Paso, Texas
Wells-Gardner & Company	Chicago, Illinois
Hoffman Radio Corporation	Los Angeles, California
Lewyt Corporation	Brooklyn, New York
Freed Radio Corporation	New York, New York
Allen B. DuMont Laboratories, Inc.	Passaic, New Jersey
Fisher Radio Company	New York, New York
Emerson Radio & Phonograph Corporation	New York, New York

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TOP VIEW LESS TURNTABLE

THE CHANGE CYCLE

The trip dog (56A) is normally held away from the cam actuating gear (47) by the velocity trip and roller assembly (52). This assembly may be moved away manually by pressing the "on" button to reject an undesired record, or it will be moved away automatically when the pickup approaches the spindle at a rate greater than $\frac{1}{8}$ " per half revolution of the turntable. During normal playing of a record, the automatic trip arm (69) pushes against the velocity trip assembly, but the projections on the cam actuating gear push it back with each half revolution of the turntable so that with normal groove pitch the trip dog will not be released.

When the trip dog is released, it falls into one of the ratchet teeth in the under surface of the cam actuating gear (47). This engages the cam with the gear, causing the cam to turn. As soon as the cam begins to rotate the roller on the rocker arm (61) rides out of the detent on to the flat surface of its track. This causes the record selector post (12) to move about $\frac{3}{32}$ " toward the center post. This movement is not sufficient to drop a record; its purpose is to catch the automatic shutoff lock to prevent it from stopping the changer before the last record has been played. At the same time, the stud on the pickup raising lever (64) moves out, bringing the raising lever into position to catch the small notch in the pickup raising disc (70).

As the cam continues to turn, the pickup raising lever pushes up on the disc, raising the pickup off the record.

The stud on the pickup raising lever now moves toward the center of the cam, moving the pickup out clear of the record stack.

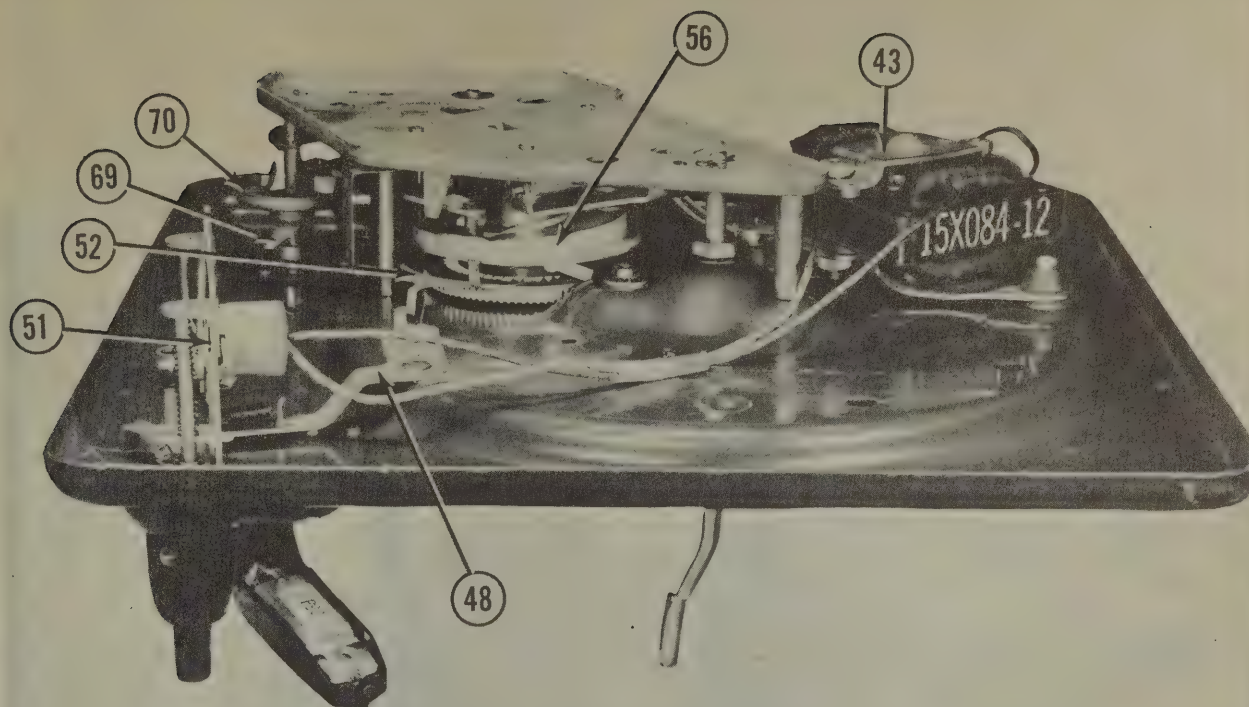
As the cam continues to rotate, the roller on the rocker arm moves down the incline, moving the record selector post toward the spindle to drop a record.

The stud on the raising lever now moves back away from the center of the cam, moving the pickup to set-down position. This position is determined by the compression spring (62). When the record selector post is turned to the 10-inch position, pressure is applied through this spring to cause the raising lever stud to follow the outer edge of the groove in the main cam. With the record selector post in the 12-inch position, the spring is relaxed and the stud follows the inner edge of the groove.

The stud now moves up an incline, allowing the pickup to come down on the record. At the same time, the roller on the rocker arm moves back up its incline, allowing the record selector post to move back to normal position.

The hook on the velocity trip and roller assembly (52) catches the trip dog and disengages the main cam from the cam actuating gear at the end of the cycle.

If no record is resting on the spindle step at the beginning of a change cycle, the automatic shut-off lock will engage the pickup raising disc and prevent the pickup from moving in to the set-down position. It, therefore, sets down on the "off" button, shutting the changer off.



BOTTOM VIEW

ADJUSTMENTS

PICKUP ARM HEIGHT

The needle should clear the top record of a full stack by approximately $\frac{1}{8}$ inch. Adjustment may be made by bending the pickup raising lever (64) at the bend just below the point of contact with the pickup raising disc. Do not attempt to adjust by moving the raising disc.

SET-DOWN ADJUSTMENT

Normally, the set-down point may be adjusted by turning the eccentric screw in the hinge. This screw may be reached through a hole in the top of the pickup arm. If this screw does not move the arm far enough, loosen the set screws in the pickup arm raising disc, and turn the disc until the adjustment is correct. Use a standard 10-inch record and adjust for a set-down point $\frac{1}{8}$ inch in from the edge of the record. Check the adjustment with a standard 12-inch record and make a compromise adjustment if necessary.

RECORD SELECTOR POST ANGLE

The record selector post should be adjusted so that the curve of the post lines up with the edge of a record on the spindle. This may be adjusted, if necessary, by loosening the set screws in the selector lever collar (60) and turning the post to the proper angle.

AUTOMATIC TRIP CLUTCH FRICTION

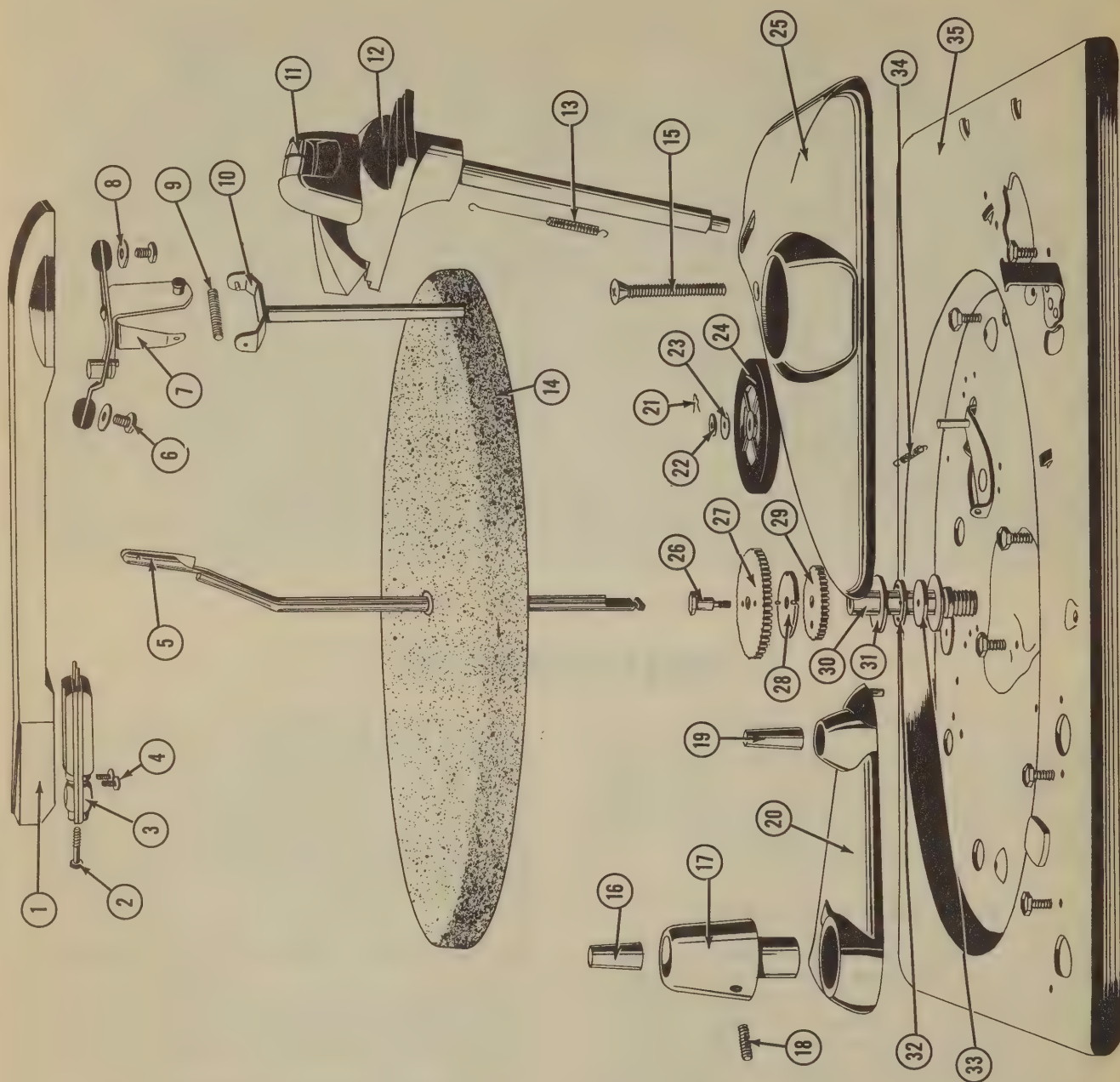
The collar (66) which adjusts the tension of the clutch spring should be set at least $\frac{1}{4}$ inch below the main base plate. A spring clip is frequently used instead of this collar. The spring tension should be just enough to operate the trip mechanism. Too much tension will cause undue drag on the pickup arm. No oil or grease should be used on this clutch.

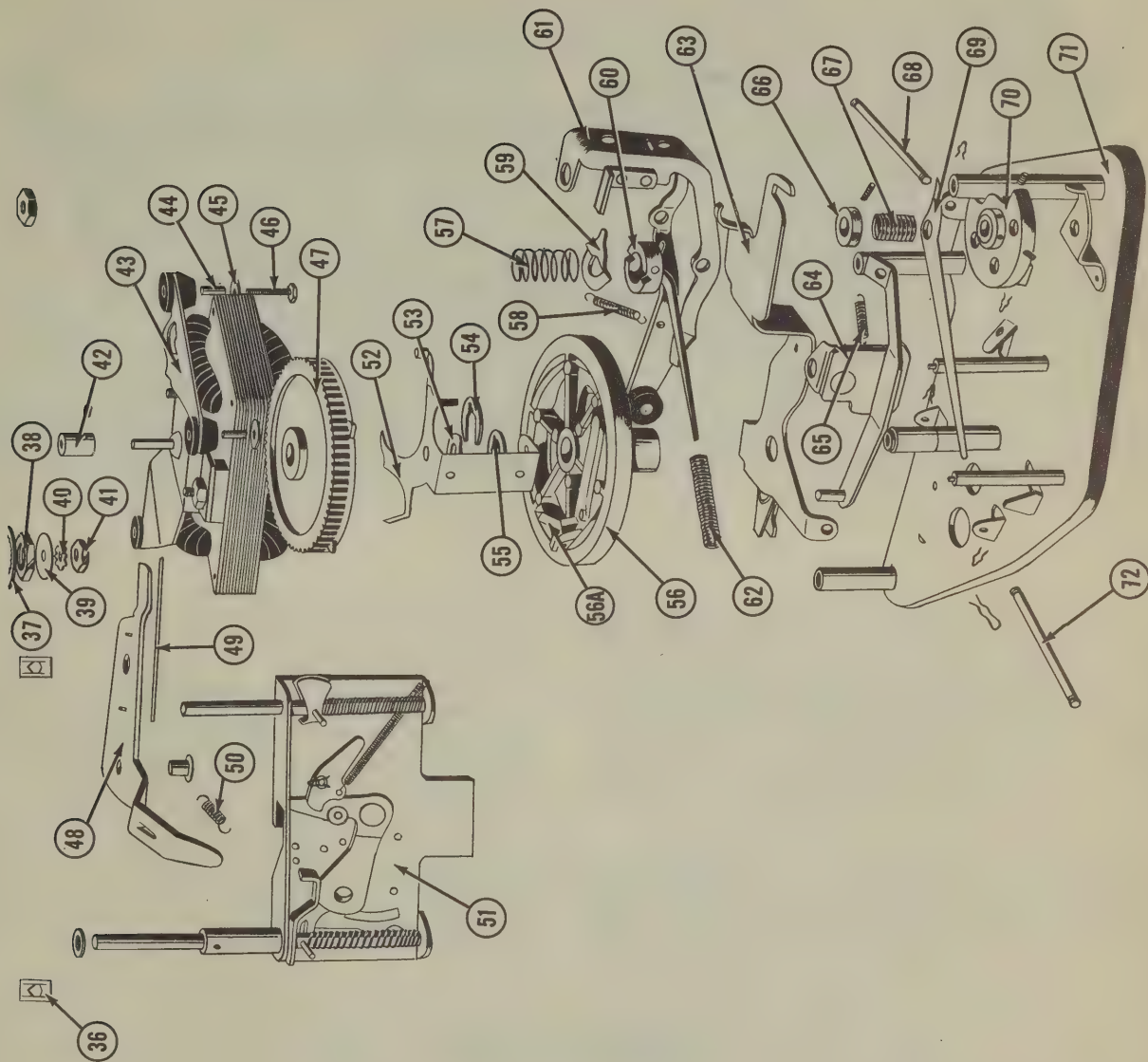
VELOCITY TRIP AND ROLLER ASSEMBLY

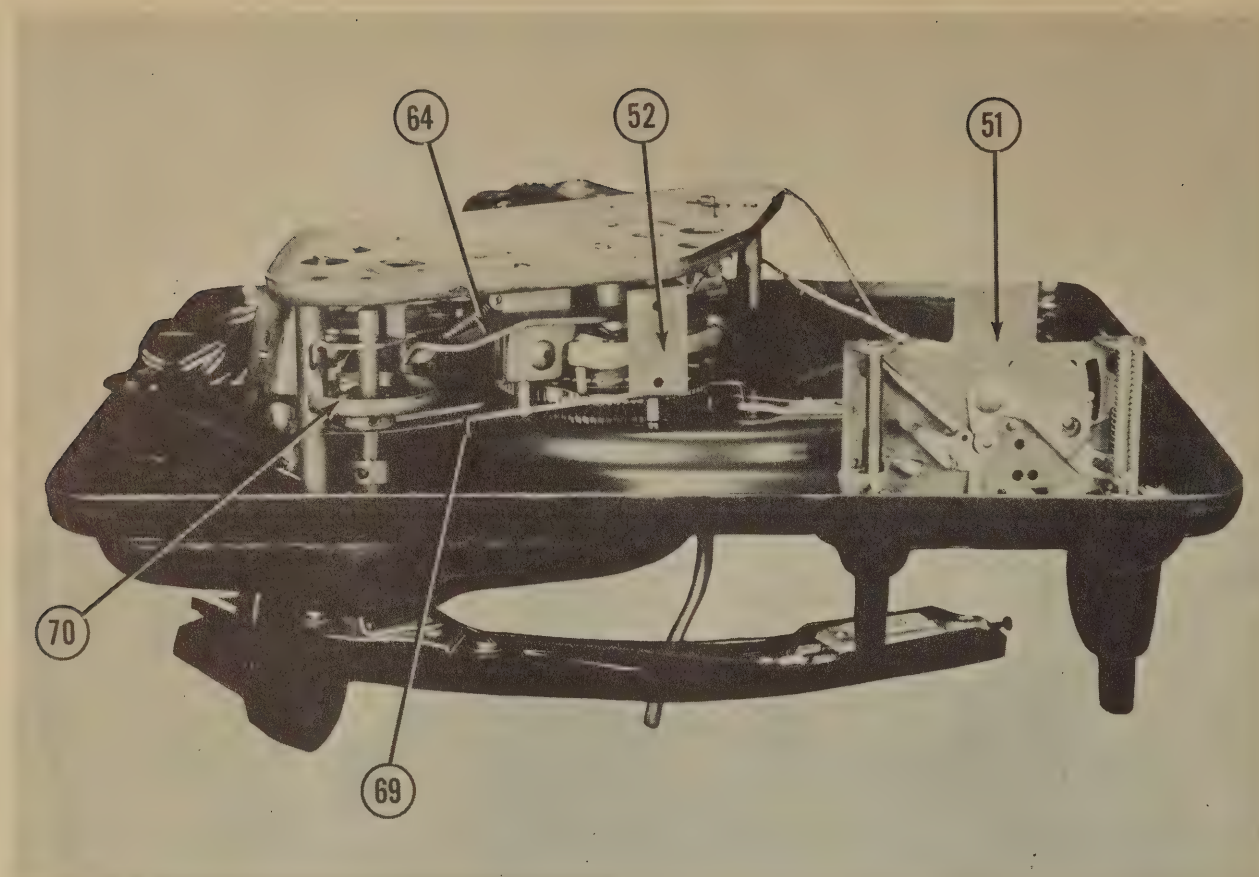
The hook which disengages the trip dog from the main cam actuating gear should be adjusted for a clearance of five to fifteen mils below the actuating gear. Too much clearance may allow the trip dog to bounce and re-engage.

AUTOMATIC SHUT-OFF LOCK

With no records on the turntable, check the automatic shut-off lock lever (63) for proper height. With the changer in play position, the hook should clear the top of the pickup raising disc by about $\frac{1}{32}$ inch. Bend the hook, if necessary, to make this adjustment. When the adjustment is correct, the hook will catch the raising disc at the beginning of the cycle and prevent its lateral movement. With records on the spindle, the hook is moved up high enough to clear the raising disc throughout the entire change cycle.







SIDE VIEW

When the arm is in "off" position, the lip of the raising disc rests in the groove between the stud post and bracket. In early production, this groove was formed by a chamfered and grooved collar on the stud post. If the arm does not rest properly on the "off" button, its position may be corrected by bending the lip of the raising disc. After making this adjustment, check the set-down on a 12-inch record to be certain the lip of the disc does not strike the bracket.

RECORD SELECTOR POST DISTANCE

At the beginning of the change cycle, the record selector post moves about $\frac{3}{32}$ inches toward the spindle. The purpose of this movement is to lock the automatic shut-

off lever so it will not interfere with the set-down on the last record. The movement should not be enough to drop a record. If a record does drop during this movement, it will fall on the pickup arm. Early dropping will usually be caused by the selector post resting too far from the spindle. This allows the record to catch on the edge of the selector post instead of sliding on the ledge, and the initial movement of the post will drop the record.

To remedy this, wedge the rocker arm by inserting a screwdriver between the rocker arm pivot and the sub-plate stud. Then, with the heel of the hand, push the selector post toward the spindle until a standard record resting on the spindle step extends at least half way across the ledge on the selector post.

TROUBLES

I. Failure to trip

- Insufficient tension on clutch spring (67).
- Binding in velocity trip and roller assembly (52).
- Trip dog (56A) binding.
- Automatic trip arm (69) bent.
- Manual trip lever (48) binding.
- No lead in groove on record.

II. Failure of manual trip

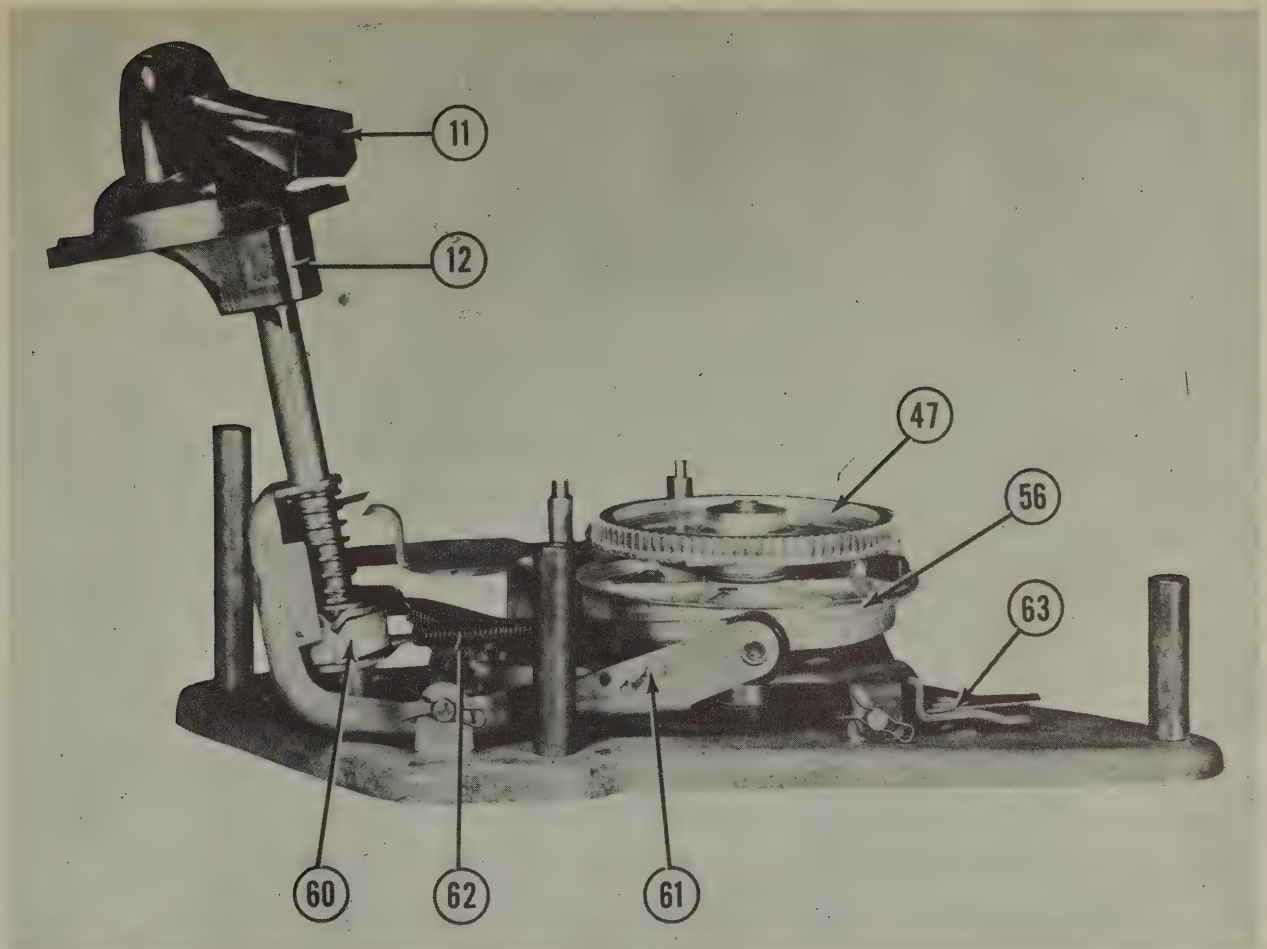
- Hair spring (49) bent or broken.
- Trip dog binding.
- Velocity trip and roller assembly binding.

III. Continuous tripping

- Too much clearance on hook (52).
- Hook bent and not engaging trip dog.
- Roller on velocity trip assembly broken.
- Manual trip lever binding.

IV. Fails to shut off after last record

- Spindle binding.
- Hook on automatic shut-off lever fails to engage raising disc.



SUB ASSEMBLY

V. Motor fails to shut off

- a. Defective switch mechanism. This mechanism should be replaced as a whole.

VI. Spindle drops more than one record

- a. Spindle latch sticking. Clean with carbon tetrachloride.
- b. Exceptionally thin records.

LUBRICATION

Lubrication should be sufficient for about a year of normal operation. When lubricating, be very careful not to allow oil or grease to come in contact with any rubber surfaces or the automatic trip arm clutch. If oil gets on any of these surfaces, it should be removed immediately with carbon tetrachloride.

I. Use No. 10 oil at the following points:

- a. Saturate felts on motor bearings.
- b. One drop each—bottom bearing point, hole in bracket, and hole in main base plate for pickup arm shaft.
- c. Turntable ball-bearing assembly.
- d. Idler wheel felt.

II. Use Lubriplate at the following points:

- a. Idler wheel link.
- b. Turntable shaft stud (30).
- c. Pickup arm hinge pins (part of 10).
- d. Knife edge of raising lever (64).
- e. Main cam bearing. Remove sub-plate assembly to gain access to this bearing.

III. Apply Sta-put to the following surfaces:

- a. Teeth of main cam actuating gear (47).
- b. Track of main cam.
- c. Teeth of fibre gears (27 and 29).
- d. Raising lever bracket bearing surfaces (64).
- e. Selector lever stop (59).

PARTS LIST

No.	Part No.	DESCRIPTION	No.	Part No.	DESCRIPTION
1	49X021-2C	Pickup arm	38	26P687	Turntable stud mounting nut
2		Needle Screw	39		Flat washer
3		Crystal Cartridge	40		Lock washer
4		Crystal Mounting Screw	41		Nut
5	11X133	Spindle assembly	42	17X412-1 17X412-4	Pulley (60 cycle) Pulley (50 cycle)
6		Hinge mounting screw	43	15X084-12 25P281	Motor Rubber grommet
7	21X258 21X199	Hinge (late models) Hinge (early models)	44		Motor mounting sleeve
8		Flat washer	45		Flat washer
9	46P015	Compression spring (late models)	46		Motor mounting screw
10	11X136 42X074	Tone arm shaft (late models) Tone arm shaft (early models)	47	11X032	Main cam actuating gear
11	49P037-C	Record stabilizer weight	48	11X063	Trip lever
12	49X029-C	Record selector post	49		Trip wire—part of 48
13	46P126	Stabilizer weight spring	50		Tension spring
14	11X138-C	Turntable	51	11X052 32P002	Switch assembly Switch
15		Crescent mounting screw	52	11X047	Velocity trip and roller assembly
16	49P026-C	"On" button	53		Spring washer
17	49P024-C	Control knob	54		"C" Clip
18		Setscrew	55		Flat washer
19	49P025-C	"Off" button	56	11X033	Main cam assembly
20		Control escutcheon	57	46P012	Compression spring
21	50P125	Hairpin clip	58	46P122	Rocker arm tension spring
22	25P046	Flat washer	59	45P194	Selector lever stop
23	25P030	Felt washer	60	11X049	Selector lever and collar
24	11X003	Idler wheel	61	11X043	Rocker arm
25		Crescent	62	46P011	Selector lever compression spring
26	27P102	Shoulder mounting screw	63	11X079	Automatic shut-off lock
27	47P024	Fibre gear (large)	64	11X046 11X044 11X045	Pickup arm raising lever and bracket Raising lever bracket Pickup arm raising lever
28	45P342	Gear coupling	65	46P044	Raising lever tension spring
29	47P023	Fibre gear (small)	66	45P436	Velocity trip tension collar Velocity trip tension lock
30	41P414	Turntable bearing stud	67	46P127	Velocity trip tension spring
31	25P269	Bearing washer	68	41P421	Rocker arm pivot pin
32	11X058	Bearing race	69	45P345	Velocity trip arm
33		Flat washer	70	11X031	Pickup arm raising disc
34	46P112	Idler tension spring	71		Sub-plate and stud assembly
35	45P191	Base Plate Arm lift stop bracket	72	41P443	Automatic shut-off lock pivot pin
36		Speed nut			
37		Lock nut			

WITH THIS SET

CUMULATIVE INDEX

For First 30 Sets of *Howard W. Sams Photofact* Folders

PHOTOFACT* FOLDER SET No. 30

*TRADE MARK

★ ★ ★ CONTENTS ★ ★ ★

TRADE NAME	MODEL	FOLDER NO.	TRADE NAME	MODEL	FOLDER NO.
Admiral.....	Chassis Models 5K1, UL5K1 (Models 7T10, 7T14, 7T15).....	4720-1	Majestic.....	8FMZ 44 (Ch. 8806D).....	4720-15
Air King.....	A-511, A-512.....	4720-2	Masco.....	MA-50.....	4720-16
Bell Sound.....	RC-47 (RE-CORD-O-FONE).....	4720-3	Masco.....	TP-16A.....	4720-17
Capitol.....	D-17.....	4720-4	Minerva.....	702H, 702H-1.....	4720-18
Chancellor.....	35P.....	4720-25	Motorola.....	67X11, 67X12, 67X13 (Ch. HS-58).....	4720-20
Clarion.....	11411-N.....	4720-5	Olympic.....	7-526.....	4720-21
David Bogen.....	G-50.....	4720-6	Packard-Bell.....	471.....	4720-22
Emerson.....	519 (Ch. 120030).....	4720-7	Philco.....	UN6-400.....	4720-23
Emerson.....	548 (Ch. 120051).....	4720-8	Philco.....	48-482.....	4720-24
Firestone (Air Chief).....	4-A-42 (Code 177-7-4A42).....	4720-9	Silvertone.....	7070 (Ch. 101,817).....	4720-26
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Gen. Elect.....	326, 327.....	4720-11	Silvertone.....	7111 (Ch. 434,140).....	4720-28
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Knight.....	5C-290.....	4720-13	Thordarson.....	T-31W10A.....	4720-30
Knight.....	6C-225.....	4720-14	Zenith.....	5G003Z (Ch. 5C40Z), 5G003ZZ (Ch. 5C40ZZ).....	4720-31
			Zenith.....	5G036 (Ch. 5C51).....	4720-32

\$150
NET

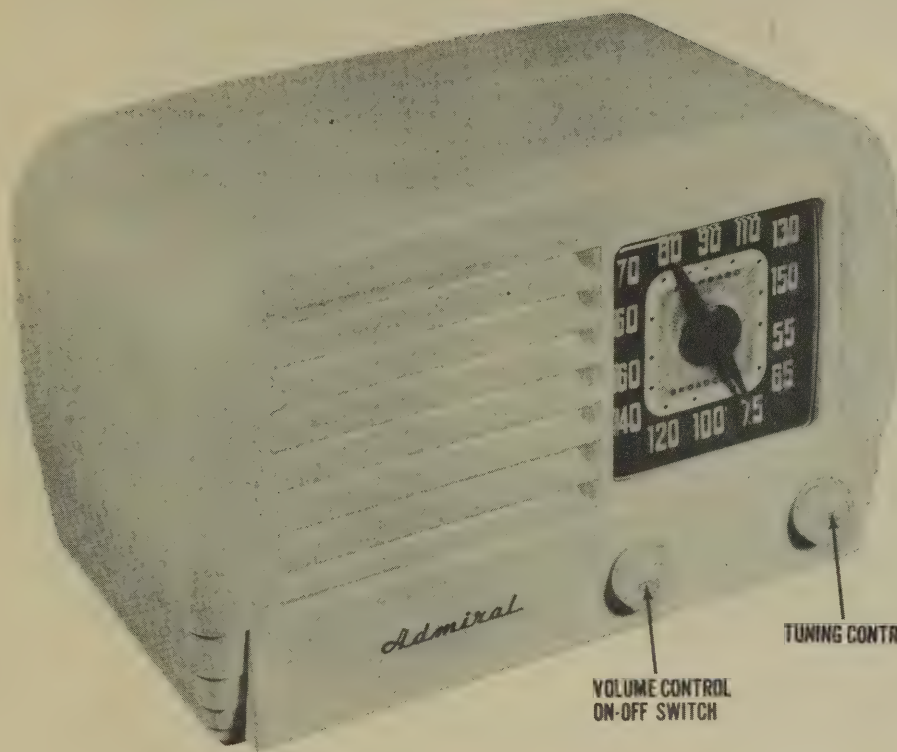
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ENVELOPE AND CONTENTS PRINTED IN U.S.A.

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Admiral.....	Chassis Models 5K1, UL5K1 (Models 7T10, 7T14, 7T15).....	4720-1	Maestic.....	8FM744 (Ch. 8B06D).....	4720-15
Air King.....	A-511, A-512.....	4720-2	Mosco.....	MA-50.....	4720-16
Bell Sound.....	RC-47 (RE-CORD-O-FONE).....	4720-3	Mosco.....	TP-16A.....	4720-17
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			Zenith.....	5G036 (Ch. 5C51).....	4720-32

ADMIRAL CHASSIS
MODELS 5K1, UL5K1



ADMIRAL CHASSIS
MODELS 5K1, UL5K1

ADMIRAL MODEL 7T10 (Ch. 5K1)

TRADE NAME	Admiral, Models 7T10, 7T14, 7T15 (Ch. 5K1, UL5K1)		
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago, Ill.		
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna		
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 or 14B6 Det.-AVC-AF, 50L6GT or 50A5 Power Output, 35Z5GT or 35Y4 Rectifier.		
POWER SUPPLY	110-120 Volts AC		
TUNING RANGE—BROADCAST	540-1630KC	RATING	.220 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	250MMFD	High side to rear stator tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output.
2	250MMFD	"	1630KC	"	"	A5	" " " "
3		Place leads near loop. No direct connection.	1400KC	Tune for maximum output.	"	A6	" " " "

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

ADMIRAL CHASSIS
MODELS 5K1, UL5K1

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		ADMIRAL PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3A	Det.-AVC-AF	12SQ7	12SQ7	8Q	
B	Det.-AVC-AF	14B6	14B6	8W	
4A	Power Output	50L6GT	50L6GT	7AC	
B	Power Output	50A5	50A5	6AA	
5A	Rectifier	35Z5GT	35Z5GT	6AD	
B	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		ADMIRAL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	CAP. 50	67A10	2N520	DSB-5030-150	TA-530	PR8A150-50-30
B	150					
7	30					
8	.05	64B1-22	TP426	MPH-4-05	TC-15	484-05
9	.02	64B1-24	TP423	S-4-02	TC-12	494-02
10	.01	64B1-25	TP421	S-4-01	TC-11	494-01
11	.01	64B1-25	TP421	S-4-01	TC-11	494-01
12	.01	64B1-30	TP428	S-4-1	TC-11	484-1
13	.05	64B1-22	TP426	S-4-05	TC-15	494-05
14	.18		TP429	S-4-2		484-2
15	500	65B6-6	NC245	MO.5-35	1FM-35	1468-0005
16	250	65B6-5	NC240	MO.5-325	1FM-325	1468-00025
17	50	65B6-4	NC225	MO.5-45	1FM-45	1468-00005

Used in Underwriters approved models only.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		ADMIRAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	1 Meg. B Shaft C Switch	75B1-16 Not Req.	MK402 Not Req.	D13-137 E 41	AM-63-Z KSS-3 SW-A	Volume Control Attach to 18A per instructions

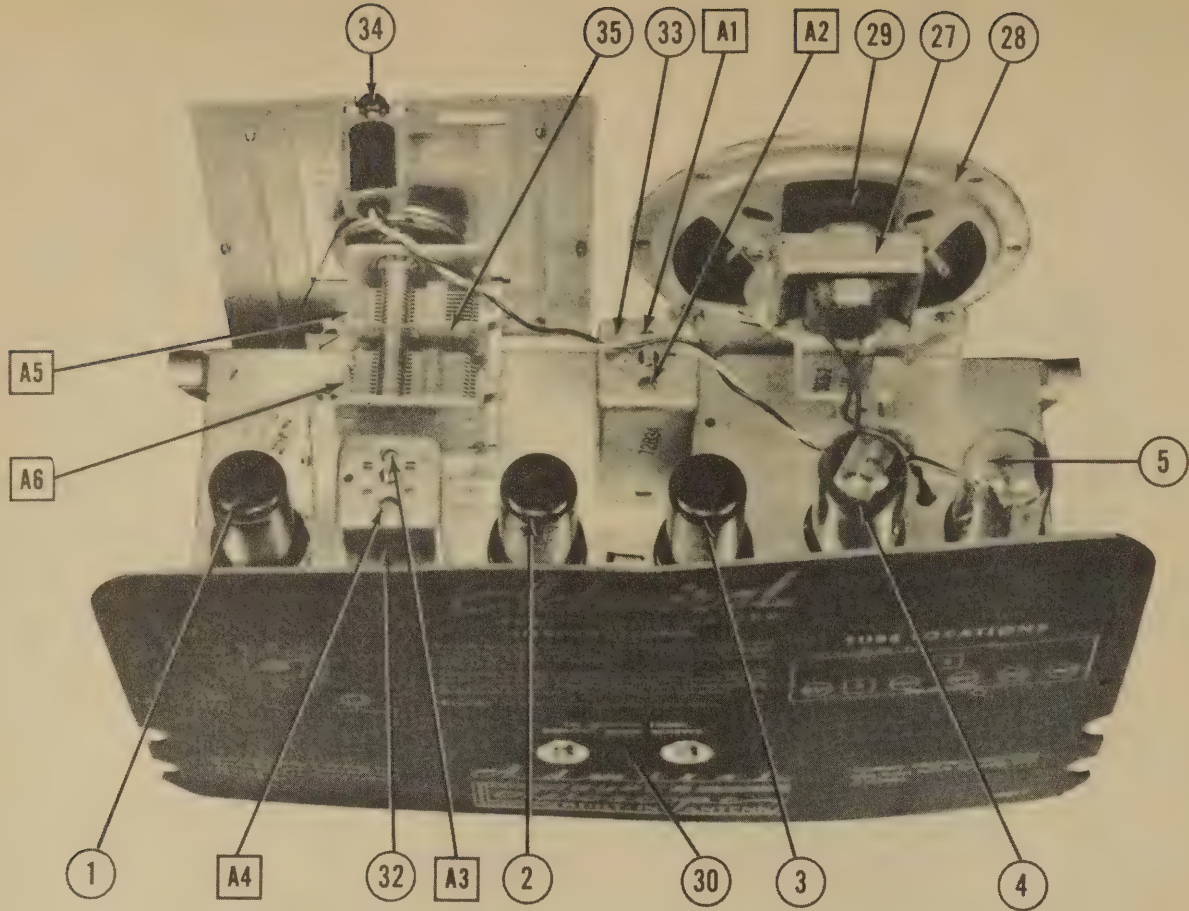
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		ADMIRAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
19	22KΩ	60B8-223		BTS-22K		Red-Red-Or. Oscillator Grid
20	1 Meg.	60B8-105		BTS-1 Meg.		Br.-Blk.-Grn. AVC Network
21	4.7 Meg.	60B8-475		BTS-4.7 Meg.		Y1-V1-Grn. AF Grid.
22	470KΩ	60B8-474		BTS-470K		Y1-V1-Y1. AF Plate Load
23	470KΩ	60B8-474		BTS-470K		Y1-V1-Y1. Output Grid
24	150Ω	60B8-151		BW-1-150		Br.-Grn.-Br. Output Cathode
25	33Ω	60B8-33		BW-1-33		Or.-Or.-Blk. Surge Limiter
26	1000Ω	60B8-2		BTA-1000		Br.-Blk.-Red Filter
27	150KΩ	60B8-154		BTS-150K		Blk.-Grn.-Y1. Line Isolation-See Note

Note-Used on Underwriters Labs. approved models only.

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		ADMIRAL PART No.	STANCOR PART No.	THORADIN PART No.	MERIT PART No.	
27	IMPEDANCE 3300Ω PRI. SEC. 3.7Ω 255Ω PRI. SEC. .6Ω	98A4	A-3876*	T22846*	A-2928*	*Send mounting tabs down, file out slots and mount on original bracket.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	ADMIRAL PART No.	JENSEN PART No.	
28A	PH	3.72	78B26-2	ST-105	Used in Chassis UL5K1
B			78B26-1	Mod. F5-X	Used in Chassis 5K1
29	CONC DIA.	VC DIA.	4-3/4	1/2	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT

R F COILS

ITEM No.	USE	REPLACEMENT DATA			
		DC RES.		ADMIRAL PART No.	MEISSNER PART No.
30	Loop Ant.	PRI.	SEC.	69019	14-1040
31	Osc. Coil	1.52	5.52	69A20	16-6658
32	Input IF	172	172	72B31	16-6660
33	Output IF	182	172	72B32	

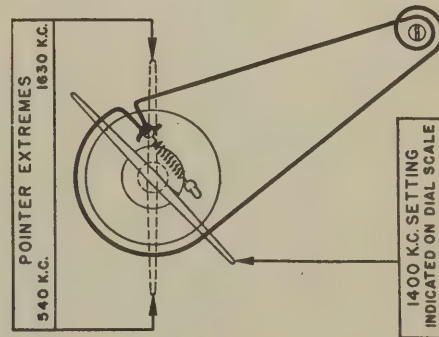
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	ADMIRAL PART No.	
34	Bayonet	6-8	0.15	Brown	81A1-8	Type 47

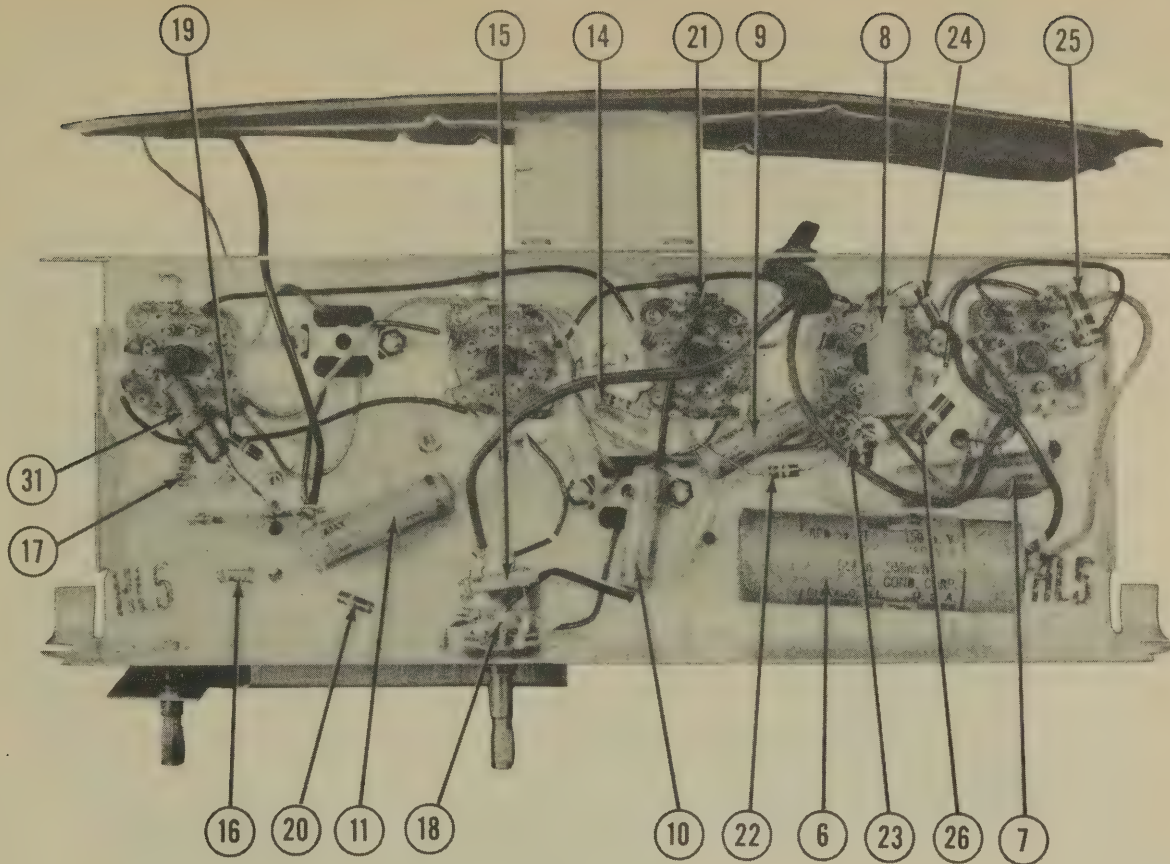
MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
35	2 Gang Var. Cap Dial Scale Pointer	A1460 21B39 25A26	(25-456 MTF, 17-184MTF)

DIAL CORD STRINGING



CHASSIS—BOTTOM VIEW





AIR KING MODEL A-511

TRADE NAME		Air King, Models A-511, A-512						
MANUFACTURER		Air King Products Co., 170-53rd St., Brooklyn, N.Y.						
TYPE SET		AC-DC Operated Superheterodyne Receiver with Loop Antenna						
TUBES (FIVE)		Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35W4 or 35Z5GT Rectifier.						
POWER SUPPLY		110-120 Volts AC-DC			RATING		.240 Amp. @ 117 Volts AC	
TUNING RANGE—BROADCAST		535-1750KC						
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT								
To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.								
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS		
.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1, A2, A3	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.		
200MMFD	High side to ext. ant. terminal. Low side to chassis.	1600KC	1600KC	"	A4	Adjust for maximum output.		
200MMFD	"	1400KC	Tune for maximum output.	"	A5	" " " "		

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DATE 12/47 FOLDER #30 FOLDER #4720-2

PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

AIR KING MODELS
A-511, A-512

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			RMA BASE TYPE	INSTALLATION NOTES
		AIR KING PART No.	STANDARD REPLACEMENT			
1	Converter	12SA7GT	12SA7GT	8AD		
2	IF Amp.	12SK7GT	12SK7GT	8N		
3	Det.-AVC-AF	12SC7GT	12SC7GT	6Q		
4	Power Output	50L6GT	50L6GT	7AC		
5A	Rectifier	35W4	35W4	5BQ		
B		35Z5GT	35Z5GT	6AD		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		AIR KING PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	CAP. 40		2NE11	DSB-2X40-150	TA-440	FRS150-40-BRD4415
B	150		TP426	MPH-4-05	TC-15	434-05
7	.05		TP421	S-4-01	TC-11	434-01
8	.01		TP421	S-4-01	TC-11	434-01
9	.01		TP421	S-4-01	TC-11	434-01
10	.01		TP426	S-4-06	TC-15	434-05
11	.05		TP426	S-6-002	TC-22	434-002
12	.002		MC245	MO-5-35	IFM-35	1468-0005
13	510		MC241	MO-5-33	IFM-33	1468-0004
14	330		MC241	MO-5-33	IFM-33	1468-0004
15	220		MC240	MO-5-325	IFM-325	1468-00022

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIR KING PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	RESIST-ANCE 500K \pm		MR-48	D13-133	M-60-Z	Volume Control
B	Shaft	AK-2471	Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch		M-26	41	SW-A	

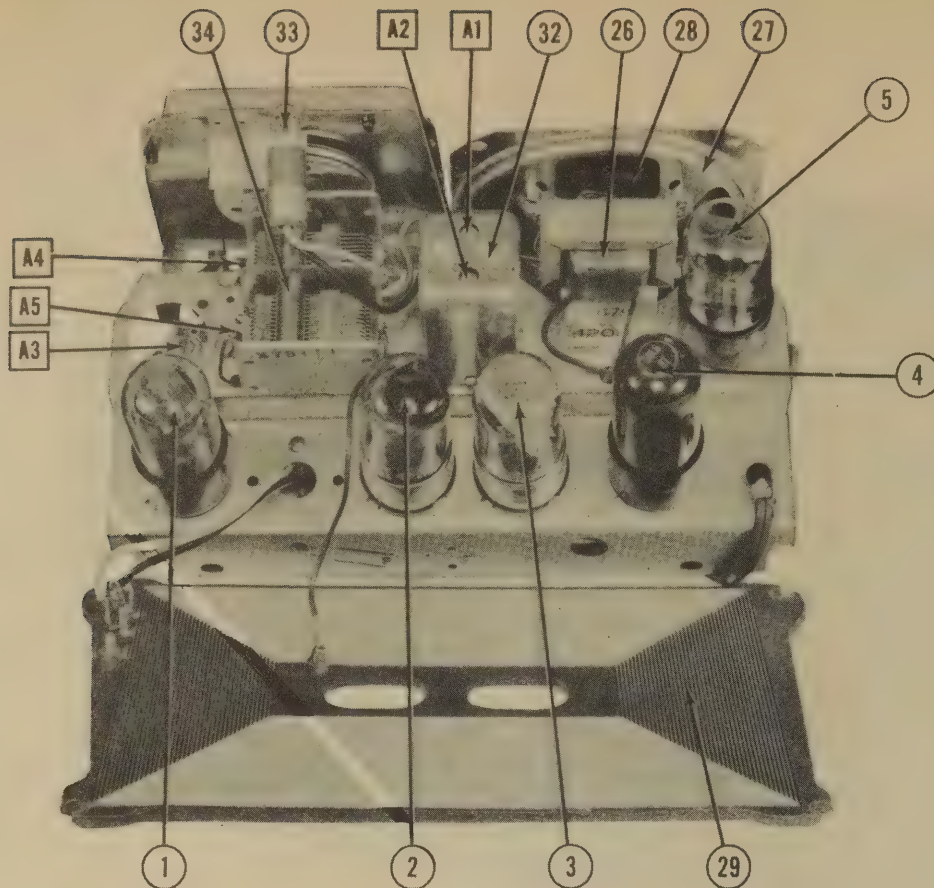
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		AIR KING PART No.	IRC PART No.		
17	22K Ω		BTS-22K		Red-Red-Or. Oscillator Grid
18	1.5 Meg.		BTS-1.5 Meg.		Br.-Grn.-Grn. IF Grid - See Note 1
19	2.2 Meg.		BTS-2.2 Meg.		Red-Red-Grn. AVC Network - See Note 2
20	4.7 Meg.		BTS-4.7 Meg.		Yl.-Yl.-Grn. AF Grid
21	330K Ω		BTS-330K		Or.-Or.-Yl. AF Plate Load - See Note 3
22	1 Meg.		BTS-1 Meg.		Br.-Blk.-Grn. Output Grid - See Note 4
23	1500 Ω		BT-2-1500		Br.-Grn.-Red Filter - See Note 5
24	18 Ω		BW-18		Br.-Gray-Blk. Rectifier Ballast
25	150 Ω		BW-150		Br.-Grn.-Br. Output Cathode-See Note 6

Note 1 - Some models use 1 Meg. in this application. IRC replacement B1S-3.3 Meg.
Note 2 - Some models use 3.3 Meg. in this application. IRC replacement B1S-3.3 Meg.
Note 3 - Some models use 220K Ω in this application. IRC replacement B1S-220K.
Note 4 - Some models use 330K Ω in this application. IRC replacement B1S-330K.
Note 5 - Some models use 2200 Ω in this application. IRC replacement B1-2-2200.
Note 6 - Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.		AIR KING PART No.	STANCOR PART No.	MERIT PART No.	
26	2900 Ω	3.3 Ω	1902	.62	A-3876*	T22845** A-2928*	*Bend mounting tabs down, file out slots and mount on original bracket.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		AIR KING PART No.	JENSEN PART No.	
27	FIELD PM	VC IMP. 3.32	ST-1131 Mod. P4-X	tDrill and tap magnet frame.
28	CONE DIA. 4"	VC DIA. 1/2	5879 NRR-USCU	

R F COILS

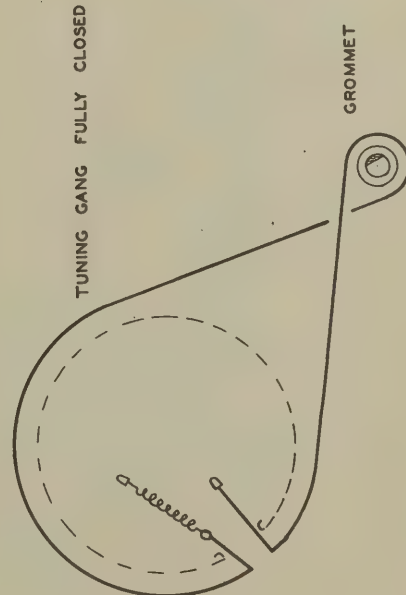
ITEM No.	USE	REPLACEMENT DATA		
		DC RES.	AIR KING PART No.	WEISSNER PART No.
29	Loop Ant.	PRI. SEC.		
30	Osc. Coil	1.80		14-1040
31	IF Coil	5.80 15.10		18-6658
32	Input IF	200		

DIAL LIGHT

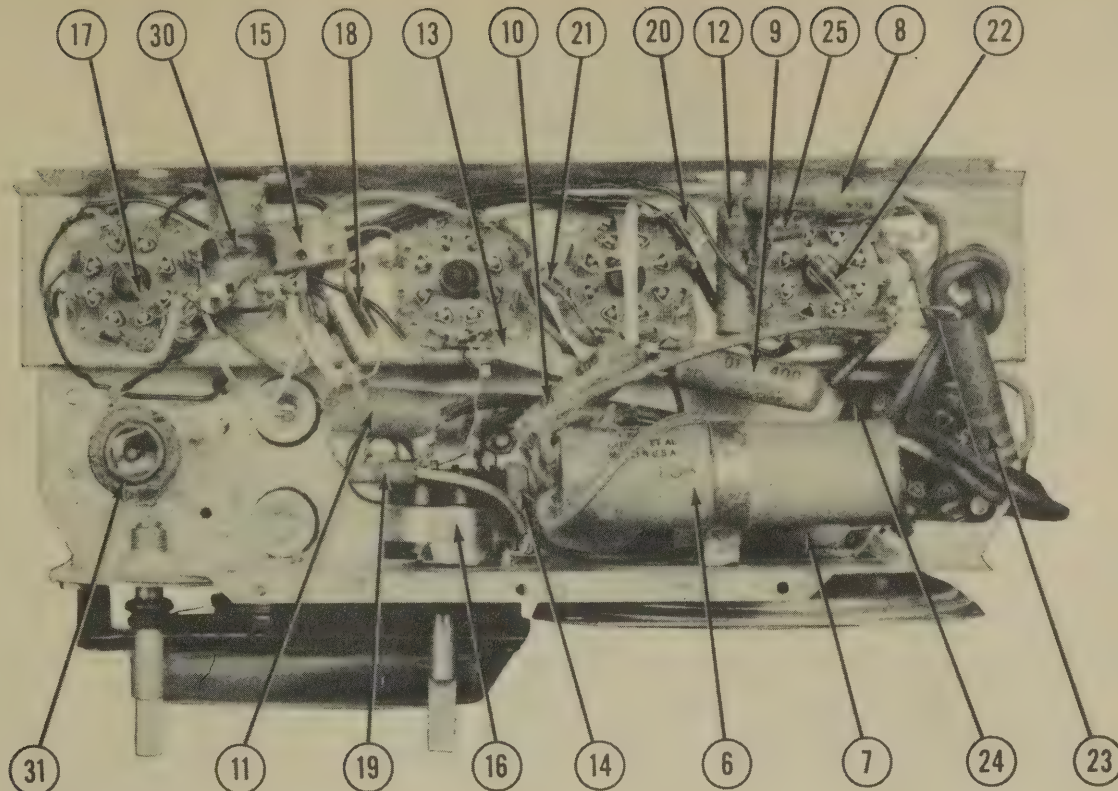
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	AIR KING PART No.	
33	Bayonet	6-8	0.15	Brown		Type 47

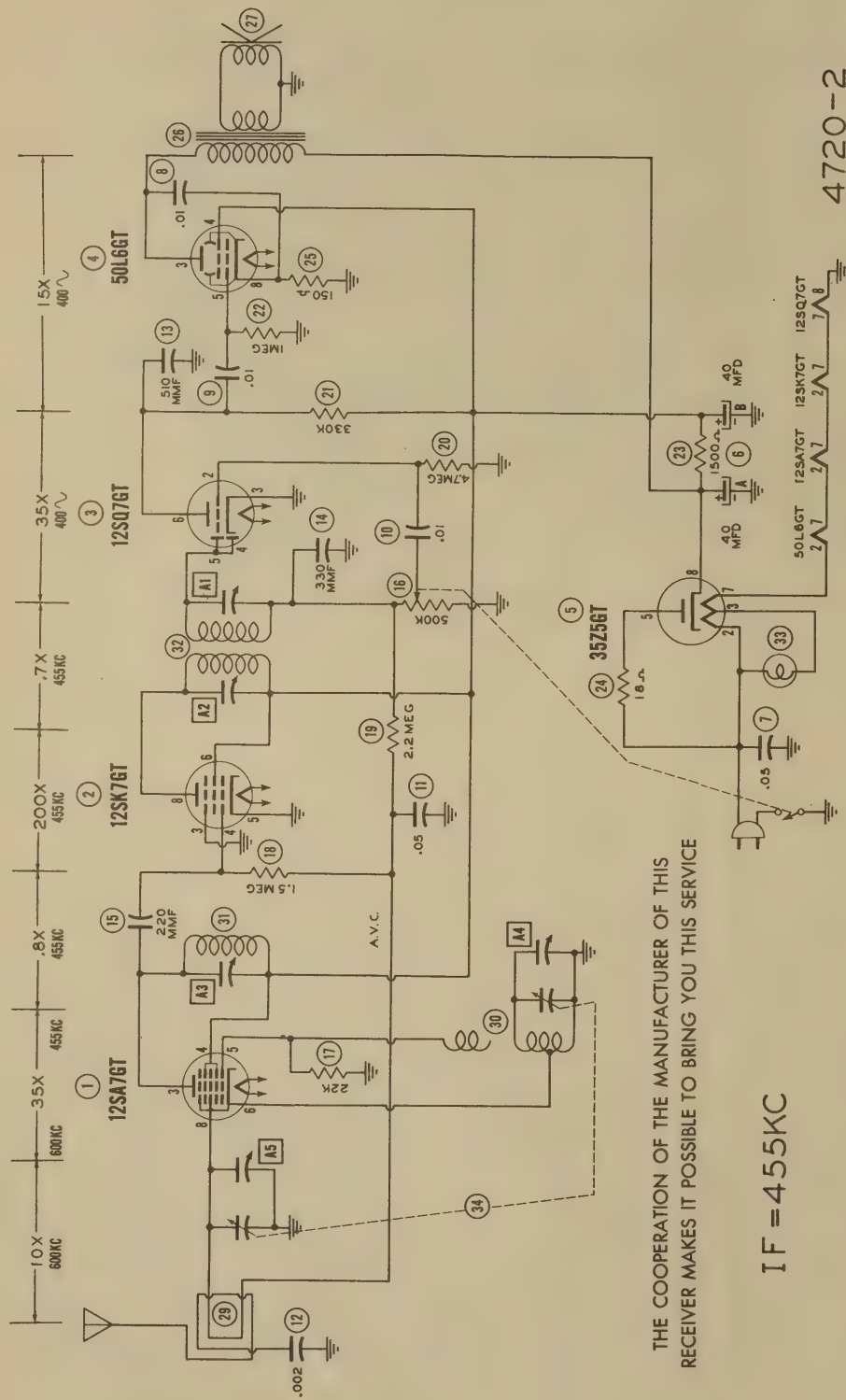
MISCELLANEOUS

ITEM No.	PART NAME	AIR KING PART No.	NOTES
34	2 Gang Var. Cap		(24-443 MTF, 20-274 MTF)



CHASSIS—BOTTOM VIEW





THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

IF = 455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	OV.	36VAC	88VDC	88VDC	-8.8VDC	OV.	23VAC	-7VDC
2	12SK7GT	OV.	23VAC	OV.	-1.6VDC	88VDC	88VDC	11VAC	88VDC
3	12SQ7GT	OV.	-1.4VDC	OV.	-3VDC	85VDC	11VAC	OV.	OV.
4	50L6GT	OV.	87VAC	115VDC	88VDC	OV.	36VAC	6.3VDC	OV.
5	35Z5GT	OV.	117VAC	112VAC	OV.	110VAC	OV.	87VAC	115VDC

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RESISTANCE READINGS

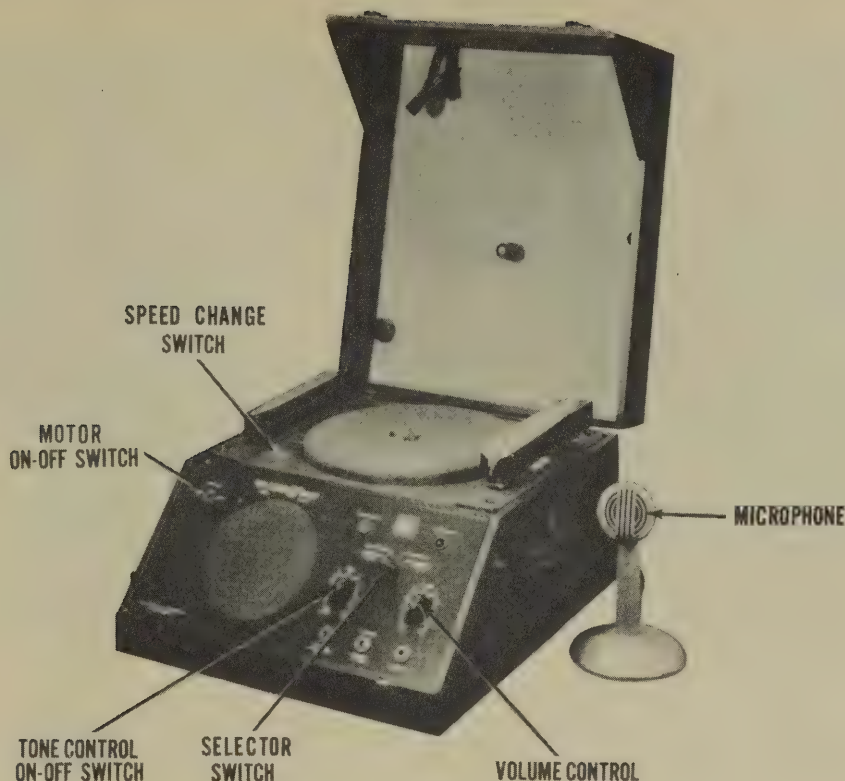
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	OV.	36Ω	1 Meg.	1 Meg.	23KΩ	.5Ω	26Ω	3 Meg.
2	12SK7GT	OV.	26Ω	OV.	4.5 Meg.	OV.	1 Meg.	13Ω	1 Meg.
3	12SQ7GT	OV.	5 Meg.	OV.	500KΩ	500KΩ	1.3 Meg.	13Ω	OV.
4	50L6GT	OV.	90Ω	1 Meg.	1 Meg.	1 Meg.	1 Meg.	38Ω	150Ω
5	35Z5GT	OV.	115Ω	110Ω	1 Meg.	130Ω	1 Meg.	90Ω	1 Meg.

STAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



BELL SOUND MODEL RC-47 (RE-CORD-O-FONE)

TRADE NAME	Bell Sound, Model RC-47 (RE-CORD-O-FONE)		
MANUFACTURER	Bell Sound Systems, Inc., 1183 Essex Ave., Columbus 3, Ohio		
TYPE SET	AC Operated Portable Recorder and Phonograph		
TUBES (THREE)	Types, 7F7 AF Amp., 7C5 Power Output, 7Y4 Rectifier		
POWER SUPPLY	110-120 Volts AC	RATING	.40 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7F7	3.1VAC	1.3VDC	27VDC	0V.	-.4VDC	60VDC	0V.	3.1VAC
2	7C5	3.1VAC	240VDC	260VDC	27VDC	0V.	0V.	12VDC	3.1VAC
3	7Y4	3.1VAC	0V.	310VAC	0V.	0V.	310VAC	350VDC	3.1VAC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7F7	.1Ω	2.7KΩ	450KΩ	500KΩ	10 Meg.	650KΩ	0Ω	.1Ω
2	7C5	.1Ω	80KΩ	80KΩ	450KΩ	INF.	500KΩ	270Ω	.1Ω
3	7Y4	.1Ω	INF.	440Ω	INF.	INF.	420Ω	80KΩ	.1Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

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DATE 12/47 SET #30 FOLDER #4720-3

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

BELL SOUND MODEL RC-47
(RE-CORD-O-FONE)

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		BELL SOUND PART No.	STANDARD REPLACEMENT	
1	AF Amp	7F7	8AC	
2	Power Output	7C5	6AA	
3	Rectifier	7Y4	5AB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

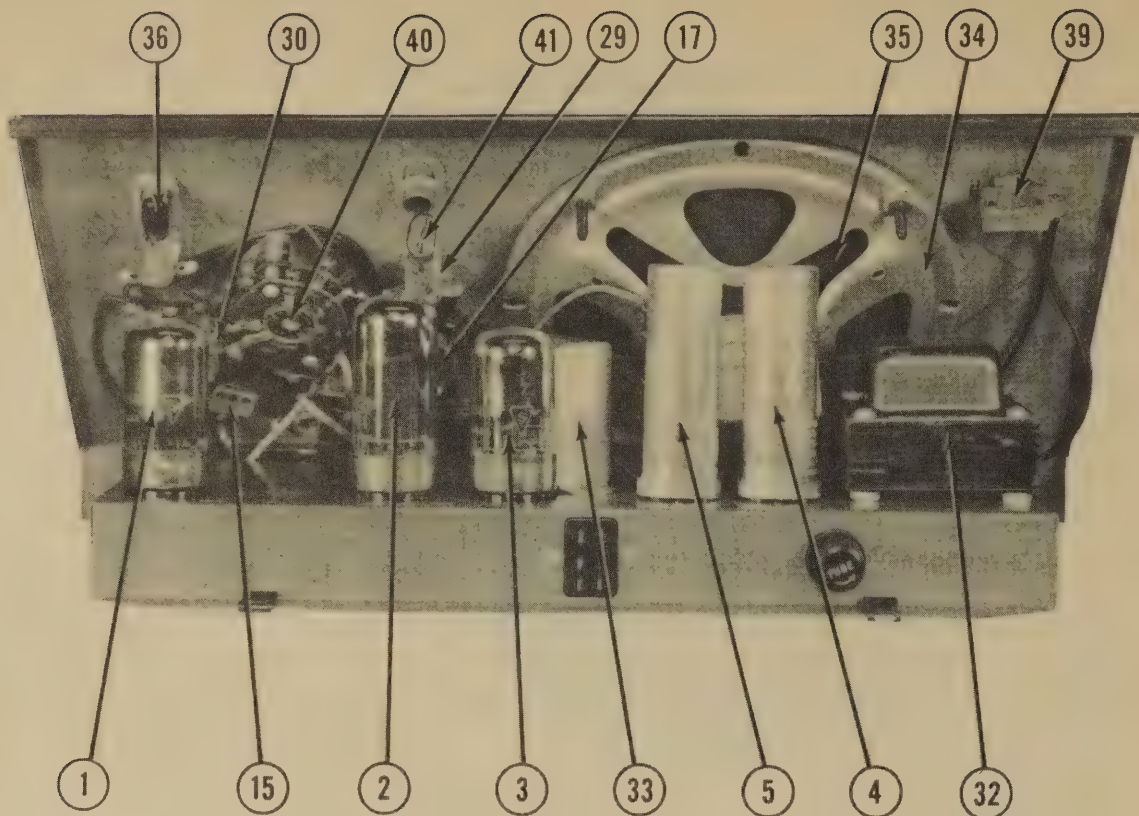
ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		BELL SOUND PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
4A	30	FP145	FP145	DY-30-450	EL-3	AF6J	UP3045
5A	50	TC29	TC29	MY-50-25	TA-50	PR825-50	BR502
5B	30	FP145	FP145	DY-30-450	EL-3	AF6J	UP3045
6	50	TC29	TC29	MY-50-25	TA-50	PR825-50	BR502
7	.001	TP404	TP404	S-8-001	TC-21	884-001	D7881
8	.01	TP410	TP410	S-8-01	TC-11	884-01	D7881
9	.5	TP432	TP432	SDR-5-5	TC-5	884-5	D7881
10	.001	TP404	TP404	S-8-001	TC-21	884-001	D7881
11	.01	TP410	TP410	S-8-01	TC-11	884-01	D7881
12	.005	TP408	TP408	S-8-005	TC-11	884-01	D7881
13	.003	TP408	TP408	S-8-003	TC-25	884-003	D7881
14	500	MC245	MC245	FO-5-35	1FM-35	1468-0005	D7881
15	500						SW5T5

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		BELL SOUND PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	500KΩ		MR48	D13-133	U-60-2	Volume Control
17A	1 Meg.		MR53	D13-137	U-63-2	Attach to 16A per instructions
17B	1 Meg.		MR53	D13-137	U-63-2	Tone Control
17C	1 Meg.		MR53	D13-137	U-63-2	Attach to 17A per instructions
17D	1 Meg.		MR53	D13-137	U-63-2	Attach to 17A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		BELL SOUND PART No.	IRC PART No.	
18	500KΩ		BTS-470K	Grn.-Blk.-Yl. Series Phono
19	10 Meg.		BTS-10 Meg.	Br.-Blk.-Blue Mic. Amp. Grid
20	500KΩ		BTS-470K	Grn.-Blk.-Yl. Mic. Amp. Plate Load
21	100KΩ		BTS-100K	Br.-Blk.-Yl. Mic. Amp. Decoupling
22	2700Ω		BTS-2700	Red-Vi.-Red AF Cathode
23	500KΩ		BTS-470K	Grn.-Blk.-Yl. AF Cathode
24	500KΩ		BTS-470K	Grn.-Blk.-Yl. AF Plate Load
25	270Ω		BW-1-270	Red-Vi.-Br. Output Grid
26	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. Feedback
27	2000Ω		AB-2K	Filter
28	100KΩ		BTS-100K	Br.-Blk.-Yl. Series Neon Indicator
29	100KΩ		BTS-100K	Br.-Blk.-Yl. Neon Indicator Shunt
30	270KΩ		BTS-270K	Red-Vi.-Yl. Tone Compensation
31	47KΩ		BTS-47K	Yl.-Vi.-Or. Tone Compensation



PARTS LIST AND DESCRIPTIONS (Continued) **TRANSFORMER (POWER)**

ITEM No.	RATING			REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	BELL SOUND PART No.	STANCOR PART No.	MERIT PART No.
32A	117V AC 620V CT @ .4A	5.1V CT @ .15A	6.1V CT @ 1.3A	B-20110 B-20071§	P-6119 T22R02	P-2951
B	§Alternate Transformer					

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		
	IMPEDANCE	DC RES.	SEC. 1	BELL SOUND PART No.	STANCOR PART No.	MERIT PART No.
33	3700Ω	3.5Ω	270Ω	B-20099		
	40KΩ	SEC. 2	2800Ω			

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		
	FIELD PH	VC IMP.	VC DIA.	BELL SOUND PART No.	JENSEN PART No.	INSTALLATION NOTES
34		3.5Ω			ST-109	
35	6-1/4"	1/2"			Mod. PG-W	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	BELL SOUND PART No.	
36	Bayonet	6-8	0.15	Brown	S44	Type 47

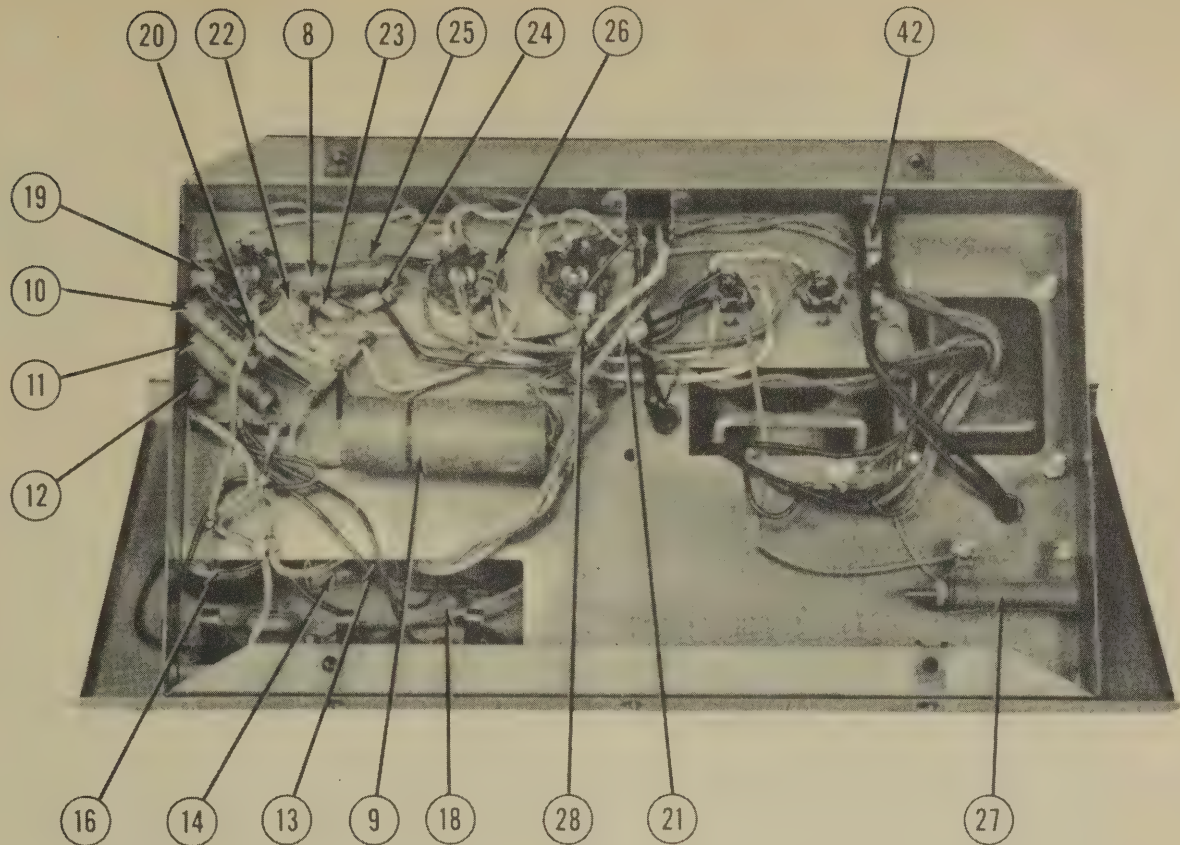
PHONO CARTRIDGE

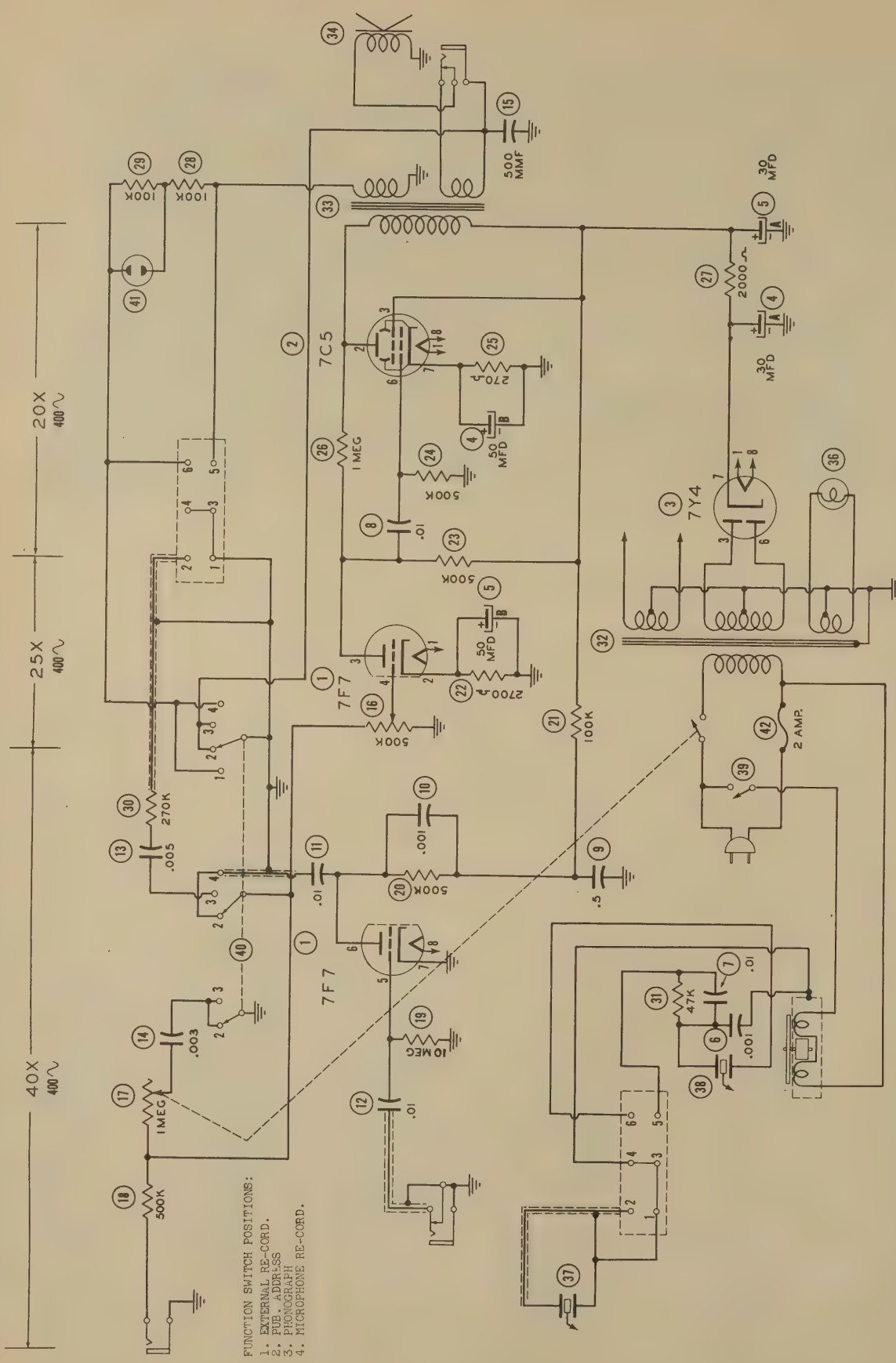
ITEM No.	REPLACEMENT DATA		REMARKS
	BELL SOUND PART No.	ASTATIC PART No.	
37		L-40	Playback
38		X-26	Crystal Cutter

MISCELLANEOUS

ITEM No.	PART NAME	BELL SOUND PART No.	NOTES
39	On-Off Switch		
40	Switch		Turntable Selector
41	Indicator	NE-51	Neon
42	Fuse		4AG (2 AMP.)

CHASSIS—BOTTOM VIEW





FUNCTION SWITCH POSITIONS:
 1. EXTERNAL RE-CORD.
 2. PUB. ADDRESS
 3. PHONOGRAPH
 4. MICROPHONE RE-CORD.

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 RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4720-3

TRADE NAME	Capitol, Model D-17		
SUPPLIER	Capitol Distributing Corp., Sunset & Vine, Hollywood, Calif.		
TYPE SET	AC Operated Record Player with 7 Tube Amp. and Speaker		
TUBES (SEVEN)	Types, 6SK7 AF Amp., 6SK7 Expander Amp., 6H6 Expander Rect., 6SN7GT Phase Inv.-AF, (2) 6V6GT Power Output, 5U4G Rectifier.		
POWER SUPPLY	110-120 Volts AC	RATING	.82 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	0V.	5.5VDC	0V.	5.5VDC	40VDC	6.1VAC	112VDC
2	6SK7	0V.	6.1VAC	0V.	-.8VDC	0V.	8VDC	0V.	155VDC
3	6H6	0V.	0V.	0V.	1.8VDC	0V.	0V.	6.1VAC	.2VDC
4	6SN7GT	0V.	150VDC	7.5VDC	0V.	132VDC	7.5VDC	6.1VAC	0V.
5	6V6	0V.	6.1VAC	290VDC	280VDC	0V.	0V.	0V.	16VDC
6	6V6GT	0V.	6.1VAC	290VDC	280VDC	0V.	0V.	0V.	16VDC
7	5U4G	0V.	290VDC	0V.	270VAC	0V.	270VAC	0V.	290VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	0Ω	1.5KΩ	10 Meg.	1.5KΩ	1.1 Meg.	.1Ω	215KΩ
2	6SK7	0Ω	.1Ω	0Ω	15 Meg.	0Ω	22KΩ	0Ω	220KΩ
3	6H6	0Ω	0Ω	4.5 Meg	600Ω	470KΩ	4.5 Meg.	.1Ω	4.5 Meg.
4	6SN7GT	200KΩ	40KΩ	4KΩ	0Ω	115KΩ	4KΩ	.1Ω	0Ω
5	6V6	INF.	.1Ω	13KΩ	13KΩ	100KΩ	INF.	0Ω	180Ω
6	6V6GT	INF.	.1Ω	13KΩ	13KΩ	100KΩ	INF.	0Ω	180Ω
7	5U4G	INF.	13KΩ	INF.	60Ω	INF.	65Ω	INF.	13KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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DATE 12/47 SET #30 FOLDER #4720-4

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		CAPITOL PART No.	STANDARD REPLACEMENT	BMA BASE TYPE	
1	AF Amp.	6SK7	6SK7	8N	
2	Expander Amp.	6SK7	6SK7	8N	
3	Expander Rect.	6H6	6H6	7C	
4	Phase Inv. & AF	6SN7GT	6SN7GT	8BD	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	6V6GT	6V6GT	7AC	
7		5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		CAPITOL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
8	20 CAP. 450 VOLT		TC75	M-20-450	UT-20	PRS-450-20	Filter
9	20 450		TC75	M-20-450	UT-20	PRS-450-20	"
10	10 450		TC72	M-10-450	UT-12	PRS-450-10	"
11	25 25		TC26	M-25-25	TA-25	PRS-25-25	AF Cathode Bypass
12	.002 600		TP405	S-6-002	TC-22	684-002	Audio Coupling—See Note
13	.003 600		TP406	S-6-003	TC-23	684-003	Tone Compensation
14	.001 600		TP404	S-6-001	TC-21	684-001	"
15	.01 600		TP410	S-6-01	TC-11	684-01	"
16	.005 600		TP408	S-6-005	TC-25	684-005	Audio Coupling
17	.2 400		TP426	S-4-2	TC-1	484-05	AF Grid Filter
18	.2 400		TP429	S-4-2	TC-2	484-02	AF Screen Bypass
19	.2 400		TP415	S-6-05	TC-15	684-05	Audio Coupling
20	.2 400		TP428	S-4-2	TC-2	484-02	AF Decoupling
21	.2 400		TP428	S-4-2	TC-2	484-02	Audio Coupling
22	.005 600		TP408	S-6-005	TC-25	684-005	Expansion Amp. Grid Filter
23	.005 600		TP428	S-4-2	TC-2	484-02	Expansion Amp. Screen Byp.
24	.05 600		TP415	S-6-05	TC-15	684-05	Expansion Coupling
25	.05 600		TP415	S-6-05	TC-15	684-05	Expansion Coupling
26	.01 600		TP410	S-6-01	TC-11	684-01	Expansion Filter
27	.2 200		TP429	S-4-2	TC-2	484-02	Audio Coupling
28	.05 600		TP415	S-6-05	TC-15	684-05	"
29	.05 600		TP415	S-6-05	TC-15	684-05	"
30	.002 600		TP405	S-6-002	TC-22	684-002	Output Plate Bypass
31	.002 600		TP405	S-6-002	TC-22	684-002	"
32	47 500		MC225	M0.5-45	IFM-45	1468-00005	Tone Compensation—See Note
33	4000		MC463	M0.5-24	IFM-24	1467-0004	"
34	47 500		MC225	M0.5-45	IFM-45	1468-00005	"

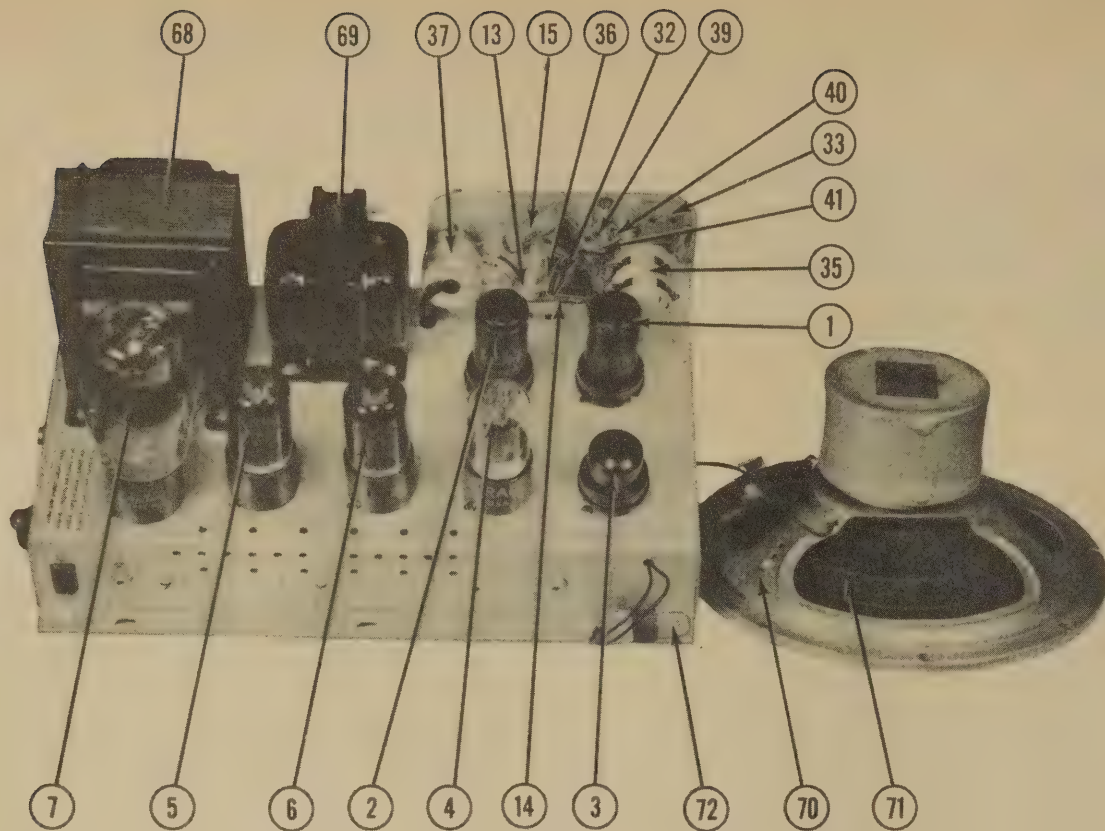
Note—Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		CAPITOL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
35A	1 Reg.					Volume Control - Front Section
B	2 Reg.					" - Middle Section
C	1 Reg.					" - Rear Section
36A	3 Reg.					Bass Control
B	Start					Attach to 36A per Instructions
37	3 Reg.					Treble Control & Switch

RESISTORS

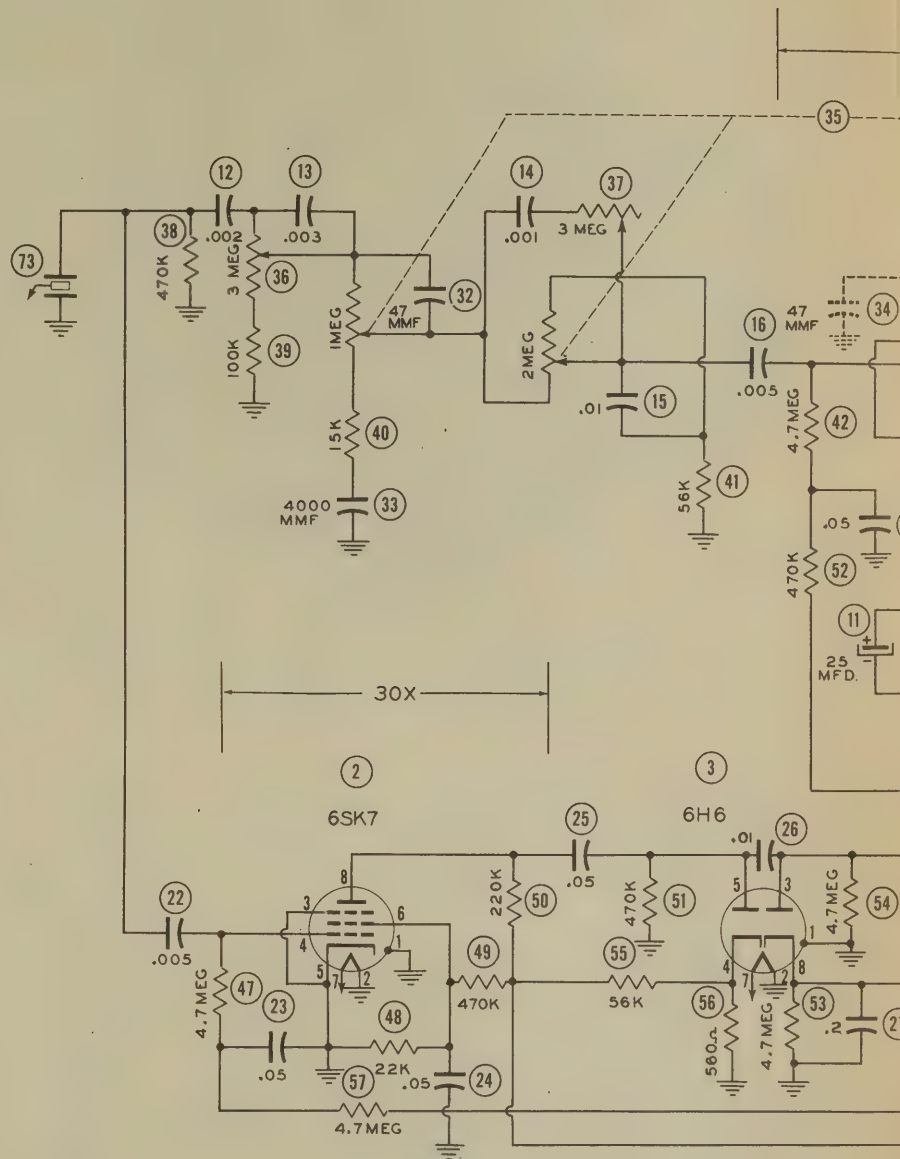
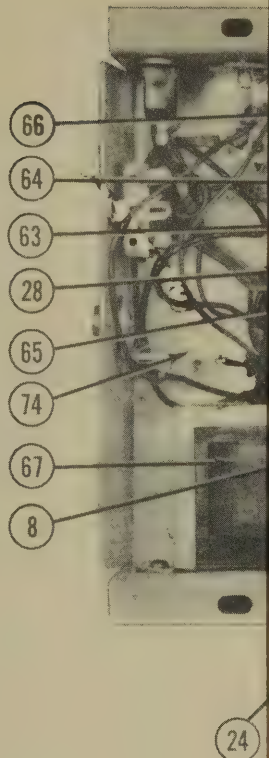
ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		CAPITOL PART No.	IRC PART No.	IKC PART No.	
38	470KΩ				Yl.-Yl.-Yl. Photo Shunt
39	100KΩ				BTS-100K
40	15KΩ				Br.-Blk.-Yl. Tone Compensation
41	56KΩ				Br.-Grn.-Or.
42	4.7 Meg.				Grn.-Blue-Or.



PARTS LIST AND DESCRIPTIONS (Continued)

CHASSIS—BOTTOM VIEW

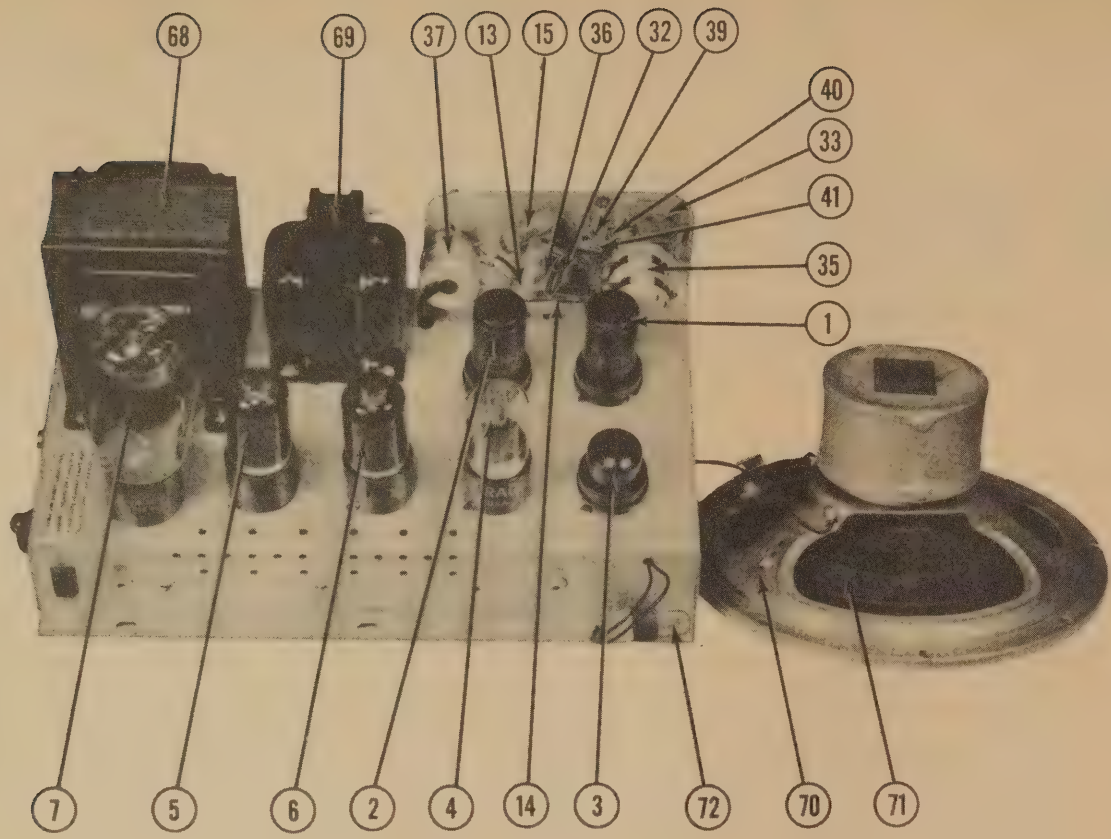
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	CAPITOL PART No.	IRC PART No.	
43	1500Ω	1/2		BTS-1500	Br.-Grn.-Red AF Cathode
44	1 Meg.	1/2		BTS-1 Meg.	Br.-Blk.-Grn. AF Screen Dropping
45	100KΩ	1/2		BTS-100K	Br.-Blk.-Vi. AF Plate Load-See Note
46	100KΩ	1/2		BTS-100K	Br.-Blk.-Vi. AF Decoupling
47	4.7 Meg.	1/2		BTS-4.7 Meg.	Vi.-Vi.-Grn. Exp. Amp. Grid
48	22KΩ	1/2		BTS-22K	Red-Red-Or. Exp. Amp. Screen Bleeder
49	470KΩ	1/2		BTS-470K	Vi.-Vi.-Vi. Exp. Amp. Screen Dropping
50	220KΩ	1/2		BTS-220K	Red-Red-Vi. Exp. Amp. Plate Load
51	470KΩ	1/2		BTS-470K	Vi.-Vi.-Vi. Exp. Diode Load
52	470KΩ	1/2		BTS-470K	Vi.-Vi.-Vi. Exp. Filter
53	4.7 Meg.	1/2		BTS-4.7 Meg.	Vi.-Vi.-Grn. Exp. Diode Load
54	4.7 Meg.	1/2		BTS-4.7 Meg.	Vi.-Vi.-Grn. Compressor Diode Load
55	56KΩ	1/2		BTA-56K	Grn.-Blue-Or. Compressor Diode Bias



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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		CAPITOL PART No.	STANDARD REPLACEMENT		
1	AF Amp.	6SK7	6SK7	8N	
2	Expander Amp.	6SK7	6SK7	8N	
3	Phase Rect.	6H6	6H6	7Q	
4	Phase Inv. & AF	6SN7GT	6SN7GT	8BD	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	6V6GT	6V6GT	7AC	
7	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		CAPITOL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
8	CAP.	TC75	TC75	M-20-450	UT-20	Filter
9	20	TC75	TC75	M-20-450	UT-20	"
10	450	TC75	TC75	M-20-450	UT-20	"
11	10	TC72	TC72	M-10-450	TA-12	AF Cathode Bypass
12	25	TC26	TC26	M-25-25	TA-25	Audio Coupling-See Note
13	.002	TP405	TP405	S-6-002	TC-22	"
14	.003	TP406	TP406	S-6-003	TC-23	Tone Compensation
15	.001	TP410	TP410	S-6-001	TC-21	"
16	.005	TP408	TP408	S-6-005	TC-11	Audio Coupling
17	.005	TP408	TP408	S-6-005	TC-11	"
18	.005	TP408	TP408	S-6-005	TC-11	AF Grid Filter
19	.005	TP408	TP408	S-6-005	TC-11	AF Screen Bypass
20	.005	TP408	TP408	S-6-005	TC-11	Audio Coupling
21	.005	TP408	TP408	S-6-005	TC-11	AF Decoupling
22	.005	TP408	TP408	S-6-005	TC-11	Audio Coupling
23	.005	TP408	TP408	S-6-005	TC-11	Expansion Amp. Grid Filter
24	.005	TP408	TP408	S-6-005	TC-11	Expansion Amp. Screen Byp.
25	.005	TP408	TP408	S-6-005	TC-11	Expansion Coupling
26	.01	TP410	TP410	S-6-01	TC-11	Compression Coupling
27	.01	TP410	TP410	S-6-01	TC-11	Expansion Filter
28	.01	TP410	TP410	S-6-01	TC-11	Audio Coupling
29	.05	TP415	TP415	S-6-05	TC-15	Output Plate Bypass
30	.05	TP415	TP415	S-6-05	TC-15	"
31	.002	TP405	TP405	S-6-002	TC-22	Tone Compensation-See Note
32	.002	TP405	TP405	S-6-002	TC-22	"
33	.002	TP405	TP405	S-6-002	TC-22	"
34	.002	TP405	TP405	S-6-002	TC-22	"
35	.002	TP405	TP405	S-6-002	TC-22	"
36	.002	TP405	TP405	S-6-002	TC-22	"
37	.002	TP405	TP405	S-6-002	TC-22	"
38	.002	TP405	TP405	S-6-002	TC-22	"
39	.002	TP405	TP405	S-6-002	TC-22	"
40	.002	TP405	TP405	S-6-002	TC-22	"
41	.002	TP405	TP405	S-6-002	TC-22	"
42	.002	TP405	TP405	S-6-002	TC-22	"
43	.002	TP405	TP405	S-6-002	TC-22	"
44	.002	TP405	TP405	S-6-002	TC-22	"
45	.002	TP405	TP405	S-6-002	TC-22	"
46	.002	TP405	TP405	S-6-002	TC-22	"
47	.002	TP405	TP405	S-6-002	TC-22	"
48	.002	TP405	TP405	S-6-002	TC-22	"
49	.002	TP405	TP405	S-6-002	TC-22	"
50	.002	TP405	TP405	S-6-002	TC-22	"
51	.002	TP405	TP405	S-6-002	TC-22	"
52	.002	TP405	TP405	S-6-002	TC-22	"
53	.002	TP405	TP405	S-6-002	TC-22	"
54	.002	TP405	TP405	S-6-002	TC-22	"
55	.002	TP405	TP405	S-6-002	TC-22	"
56	.002	TP405	TP405	S-6-002	TC-22	"
57	.002	TP405	TP405	S-6-002	TC-22	"
58	.002	TP405	TP405	S-6-002	TC-22	"
59	.002	TP405	TP405	S-6-002	TC-22	"
60	.002	TP405	TP405	S-6-002	TC-22	"
61	.002	TP405	TP405	S-6-002	TC-22	"
62	.002	TP405	TP405	S-6-002	TC-22	"
63	.002	TP405	TP405	S-6-002	TC-22	"
64	.002	TP405	TP405	S-6-002	TC-22	"
65	.002	TP405	TP405	S-6-002	TC-22	"
66	.002	TP405	TP405	S-6-002	TC-22	"
67	.002	TP405	TP405	S-6-002	TC-22	"
68	.002	TP405	TP405	S-6-002	TC-22	"
69	.002	TP405	TP405	S-6-002	TC-22	"
70	.002	TP405	TP405	S-6-002	TC-22	"
71	.002	TP405	TP405	S-6-002	TC-22	"
72	.002	TP405	TP405	S-6-002	TC-22	"

Note-Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		CAPITOL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
35A	1 Neg.					Volume Control - Front Section
35B	2 Neg.					" " " " - Middle Section
35C	1 Neg.					" " " " - Rear Section
36A	3 Neg.					Bass Control
36B	3 Neg.					Attach to 36A per Instructions
37	3 Neg.					Treble Control & Switch

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		CAPITOL PART No.	IRC PART No.	
38	470K2			YL-VI.-YL. Phono Shunt
39	100K2			Br.-Blk.-YL. Tone Compensation
40	15K2			Br.-Gri.-Or. " "
41	56K2			Gri.-Blue-Or. " "
42	4.7 Meg			YL-VI.-Gri. AF Grid

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	CAPITOL PART No.	IRC PART No.	
43	1500Ω	1/2	BTS-1500	Br.-Grn.-Red AF Cathode	
44	1 Meg.	1/2	BTS-1 Meg.	Br.-Blk.-Grn. AF Screen Dropping	
45	100KΩ	1/2	BTS-100K	Br.-Blk.-Yl. AF Plate Load-See Note	
46	100KΩ	1/2	BTS-100K	Br.-Blk.-Yl. AF Decoupling	
47	4.7 Meg.	1/2	BTS-4.7 Meg.	Yl.-Vl.-Grn. Exp. Amp. Grid	
48	22KΩ	1/2	BTS-22K	Red-Red-Or. Exp. Amp. Screen Bleeder	
49	470KΩ	1/2	BTS-470K	Yl.-Vl.-Yl. Exp. Amp. Screen Dropping	
50	220KΩ	1/2	BTS-220K	Red-Red-Yl. Exp. Amp. Plate Load	
51	470KΩ	1/2	BTS-470K	Yl.-Vl.-Yl. Exp. Diode Load	
52	470KΩ	1/2	BTS-470K	Yl.-Vl.-Yl. Exp. Filter	
53	4.7 Meg.	1/2	BTS-4.7 Meg.	Yl.-Vl.-Grn. Exp. Diode Load	
54	56KΩ	1/2	BTS-56K	Yl.-Vl.-Grn. Compressor Diode Load	
55	560Ω	1/2	BTA-56K	Grn.-Blue-Or. Compressor Diode Bias	
56	560Ω	1/2	BTS-560	Grn.-Blue-Br. Compressor Diode Bias	
57	4.7 Meg.	1/2	BTS-4.7 Meg.	Yl.-Vl.-Grn. Compressor Diode Filter	
58	220KΩ	1/2	BTS-220K	Red-Red-Yl. 2nd AF Grid	
59	3900Ω	1/2	BTS-3900	Or.-White-Red 2nd AF Cathode	
60	27KΩ	1/2	BTS-27K	Red-Vl.-Or. 2nd AF Plate Load	
61	100KΩ	1/2	BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load	
62	100KΩ	1/2	BTS-100K	Br.-Blk.-Yl. Output Grid	
63	100KΩ	1/2	BTS-100K	Br.-Blk.-Yl. Output Cathode	
64	180Ω	1/2	BW-2-180	Br.-Gray-Br. Output Cathode	
65	10KΩ	1/2	BT-2-10K	Br.-Blk.-Or. Filter	
66	20KΩ	1/2	DG-20K	Bleeder	
75	56KΩ	1/2	BTA-56K	Grn.-Blue-Or.	

Note-Some models use 220KΩ in this application. IRC replacement BTS-220KΩ.

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 Hz)	CAPITOL PART No.	STANCOR PART No.	THORDARSON PART No.	
67	.018	550Ω	17 Henries		C-1003	T20C53	C-2987

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	CAPITOL PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
68	117V AC @ .82A	540V CT @ .110A	4.9V AC @ 3.0A	6.1V AC @ 2.6A		P-4080*	T22R32*	P-3153*†

†Drill new mounting holes.

*Add series resistor to reduce plate voltage.

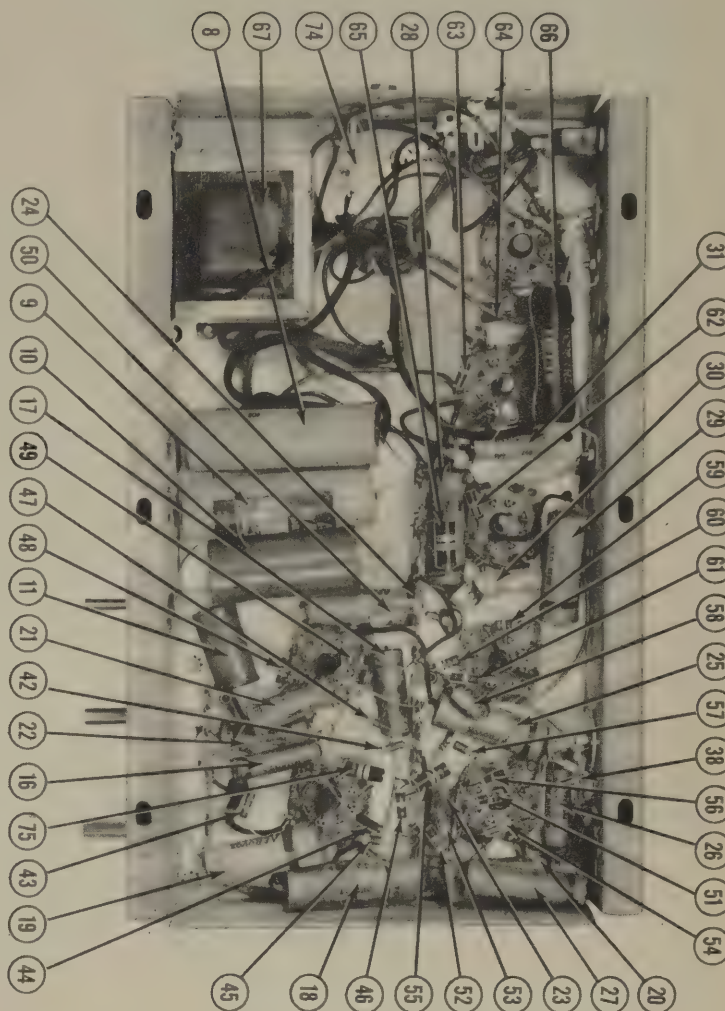
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI.	SEC.	CAPITOL PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
69	1300Ω CT	6.2Ω	220Ω CT	.3Ω		A-3303†	T22S48†	A-2904†	†Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	CAPITOL PART No.	JENSEN PART No.	
70	PM	6.2Ω		ST-104	
	CONV DIA.	VC DIA.		Mod. PS-S	
71	7 1/2"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER		

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					CAPITOL PART No.		
72	Bayonet	6-8	0.25	Blue			Type 44

PHONO CARTRIDGE

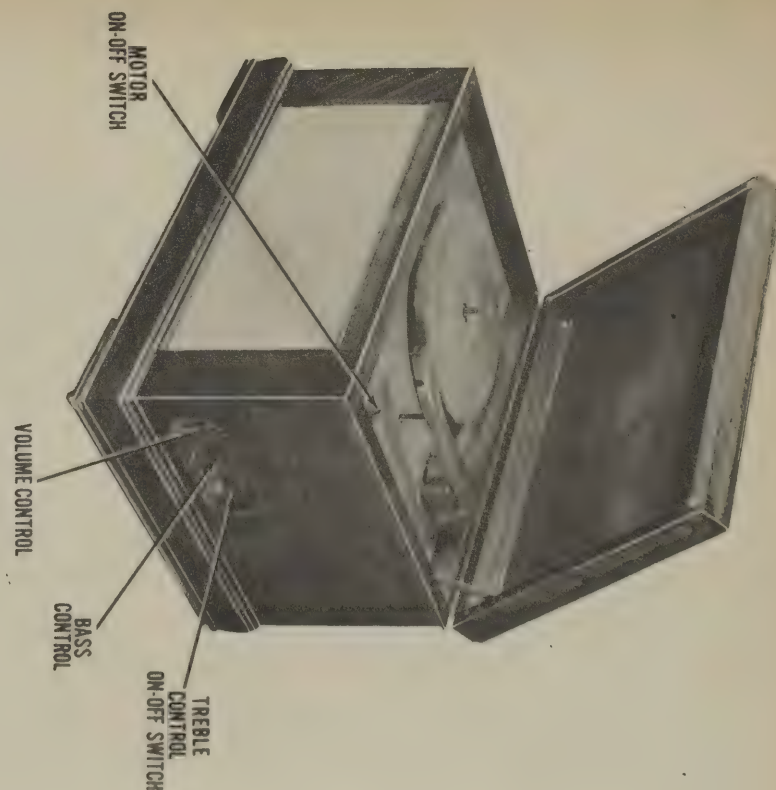
ITEM No.	REPLACEMENT DATA		REMARKS
	CAPITOL PART No.	ASTATIC PART No.	
73		L-40	

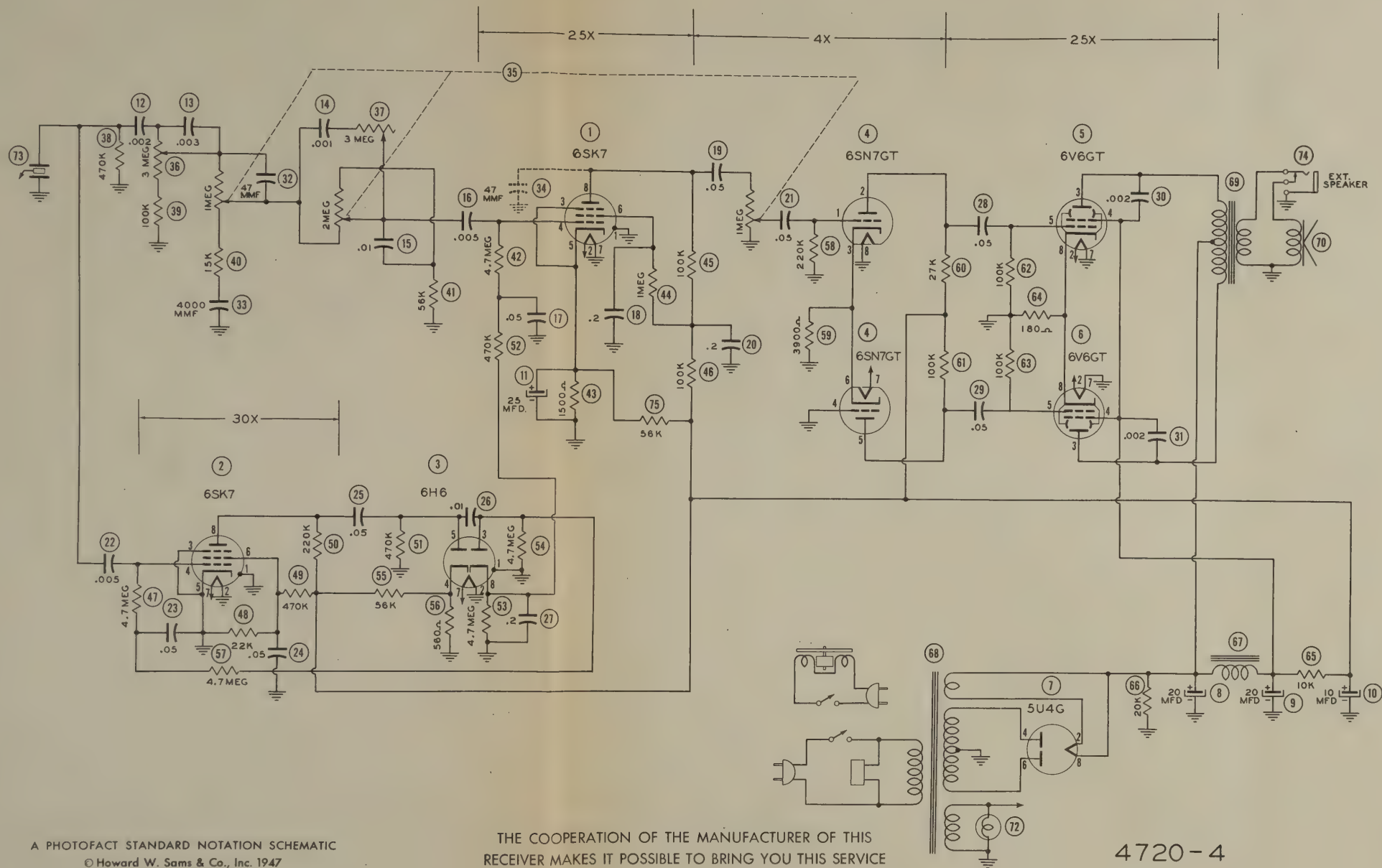
MISCELLANEOUS

ITEM No.	PART NAME	CAPITOL PART No.	NOTES
74	Jack		Ext. speaker

DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type control knobs.
2. Remove speaker plug from chassis.
3. Remove phono-pickup plug from chassis.
4. Remove cabinet light from bracket.
5. Remove three screws holding chassis in cabinet. Remove chassis from cabinet.
6. Remove four wood screws holding speaker in cabinet. Remove speaker from cabinet.





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CLARION MODEL 11411-N

TRADE NAME Clarion, Model 11411-N MANUFACTURER Warwick Mfg. Corp., 4640 W. Harrison St., Chicago 44, Ill. TYPE SET Three Power Portable Superheterodyne with Loop Antenna TUBES (FOUR) Types, 1R5 Converter, 1U4 IF Amp., 1S5 Det.-AVC-AF, 3Q4 Power Output POWER SUPPLY 105-125 Volts AC-DC or 6 Volts "A" Supply and 67.5 Volts "B" Supply RATING .140 Amp. @ 117 Volts AC or 63MA @ 6 Volts DC and 8MA @ 67.5 Volts DC TUNING RANGE-BROADCAST 545-1600KC						
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with the low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to large stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation trans. reduce dummy ant. to 200MMF to reduce hum modulation.
2 250MMFD	"	1600KC	"	"	A5	Adjust for maximum output.
3	Loop	1400KC	Tune for maximum output.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4	"	600KC	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 & 4 until no further improvement can be made.

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DATE 12/47 SET #30 FOLDER #4720-5

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

CLARION MODEL 11411-N
BATTERY-LINE OPERATED

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		CLARION PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1U4	1U4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3Q4	3Q4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	CLARION PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.		CORNBELL-DUBILIER PART No.
5A	40	150	A13-282					UP70U63	Filter
5B	20	150							"
5C	20	150							"
5D	20	150							"
6	100	25							Flament Bypass
7	.05	400	A16-179	TP426	S-4-05	TC-15	484-05	DT455	Line Filter
8	.005	200	A16-170	TF 426	S-4-05	TC-15	484-05	DT455	Line Filter
9	.005	150	A16-166		TTR-1.5-006			222D5	Power Supply
10	.005	150	A16-166		TTR-1.5-006			222D5	Output Filter Bypass
11	.005	150	A16-166		TTR-1.5-006			222D5	Audio Coupling
12	.005	150	A16-166		TTR-1.5-006			222D5	Audio Screen Bypass
13	.005	150	A16-166		TTR-1.5-006			222D5	TF Grid Filter
14	.05	400	A16-179	TF 426	TTR-1.5-006	TC-15	484-05	DT455	Converter Screen Decoupl
15	.005	150	A16-166		S-4-05			222D5	Flament Bypass
16	.05	400	A16-174	TP426	TTR-1.5-006	TC-15	484-05	DT455	AVC Filter
17	50	50	A15-191	MC225	S-4-05	TC-15	484-05	DT455	Line Isolation
18	100	100	A15-190	MC235	MO.5-45	1FM-45	1468-00005	5W5Q5	Audio Plate Bypass
19	100	100	A15-190	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Diode Filter
20	100	100	A15-190	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Cap.
21	100	100	A15-190	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.
22	100	100	A15-190	MC235	MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling

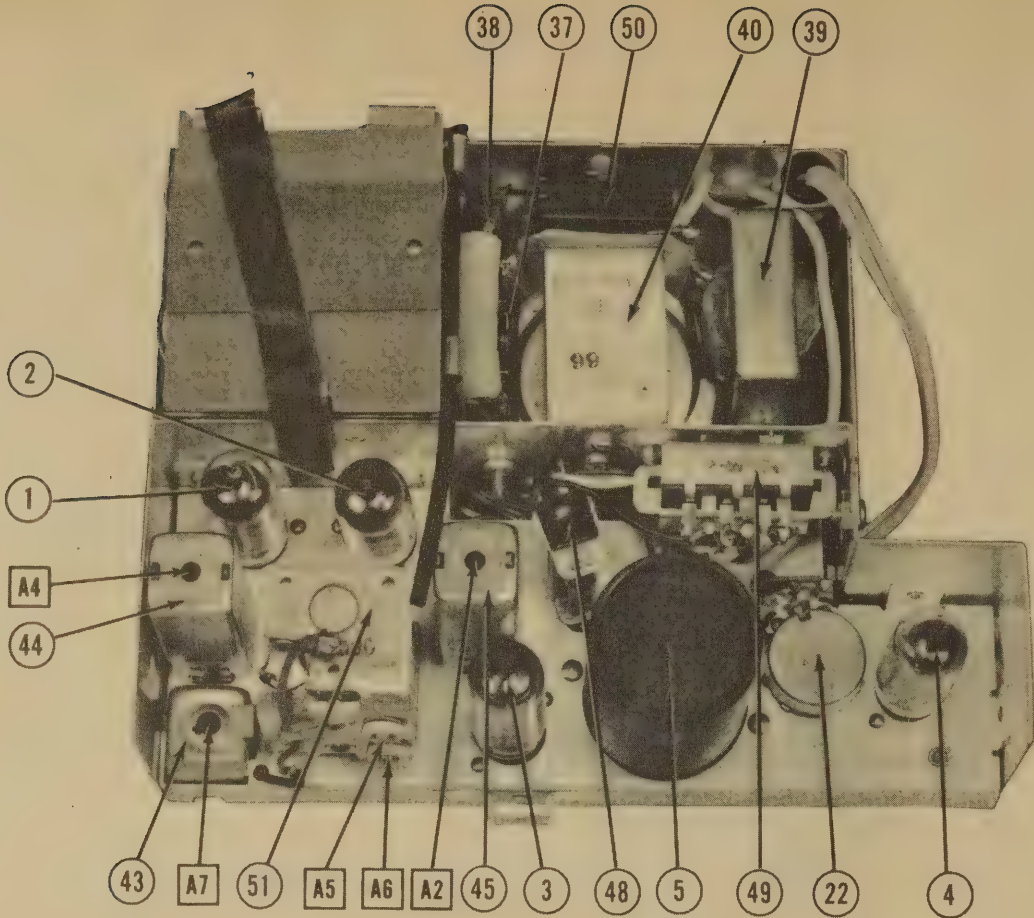
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		CLARION PART No.	MALLORY PART No.	IRC PART No.	
22A	1 Meg. Shaft	A24-172	MRS3	D13-137	Volume Control
22B		Not Req.	Not Req.	A	Attach to 22A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		CLARION PART No.	IRC PART No.	
23	2.2 Meg.	A60-726	BTS-2.2 Meg.	Red-Red-Grn. Converter Grid
24	270K	A60-723	Bk-2-270	Red-Vi.-Brn. Converter Screen Dropping
25	100K	A60-727	BTS-100K	Br.-Bik.-Vi. Oscillator Grid
26	10 Meg.	A60-728	BTS-10 Meg.	Br.-Bik.-Blue IF Grid
27	1500K	A60-729	BTS-1500	Br.-Grn.-Red Filament String
28	2.2 Meg.	A60-726	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
29	470K	A60-730	BTS-47K	Vi.-Vi.-Grn. Diode Filter
30	470K	A60-722	BTS-470	Vi.-Vi.-Brn. Filament String
31	10 Meg.	A60-728	BTS-10 Meg.	Red-Red-Grn. AF Grid
32	2.2 Meg.	A60-726	BTS-2.2 Meg.	Red-Red-Grn. AF Screen Dropping
33	470K	A60-731	BTS-470K	Vi.-Vi.-Vi. AF Plate Load
34	2.2 Meg.	A60-726	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
35	1500K	A60-729	BTS-1500	Br.-Grn.-Red Filament String
36	3300K	A60-724	ETA-3300	Or.-Or.-Red Filament
37A	1000K	A60-713	ABA-2000	Filament Dropping - See Note
37B	1000K			
38	160K	A60-725		Brn.-Blue-Brn. Surge Limiter

Note-On IRC replacement set slider at center.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.		CLARION PART No.	STANCOR PART No.	THORDARN PART No.	MERIT PART No.	
		PRI.	SEC.					
739	1900Ω	3.1Ω	750Ω	.5Ω	A-3856	T22S48	A-2900	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	CLARION PART No.	JENSEN PART No.			
40	FIELD PM VC IMP. 3-1/2"				
41	CONC DIA. VC DIA. 3-3/8" 1/2"		B79-3553		NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT

R F COILS

ITEM No.	USE	REPLACEMENT DATA				INSTALLATION NOTES
		DC RES.	CLARION	MEISSNER	MERIT	
		PRI. SEC.	PART No.	PART No.	PART No.	
42	Loop Ant.	1.5Ω	B10-477	16-6668	16-6669	
43	Osc. Coil	2.5Ω	B10-477	16-6668	16-6669	
44	Input IF	22Ω	C10-475	16-6668	16-6669	
45	Output IF	22.5Ω	C10-475	16-6668	16-6669	

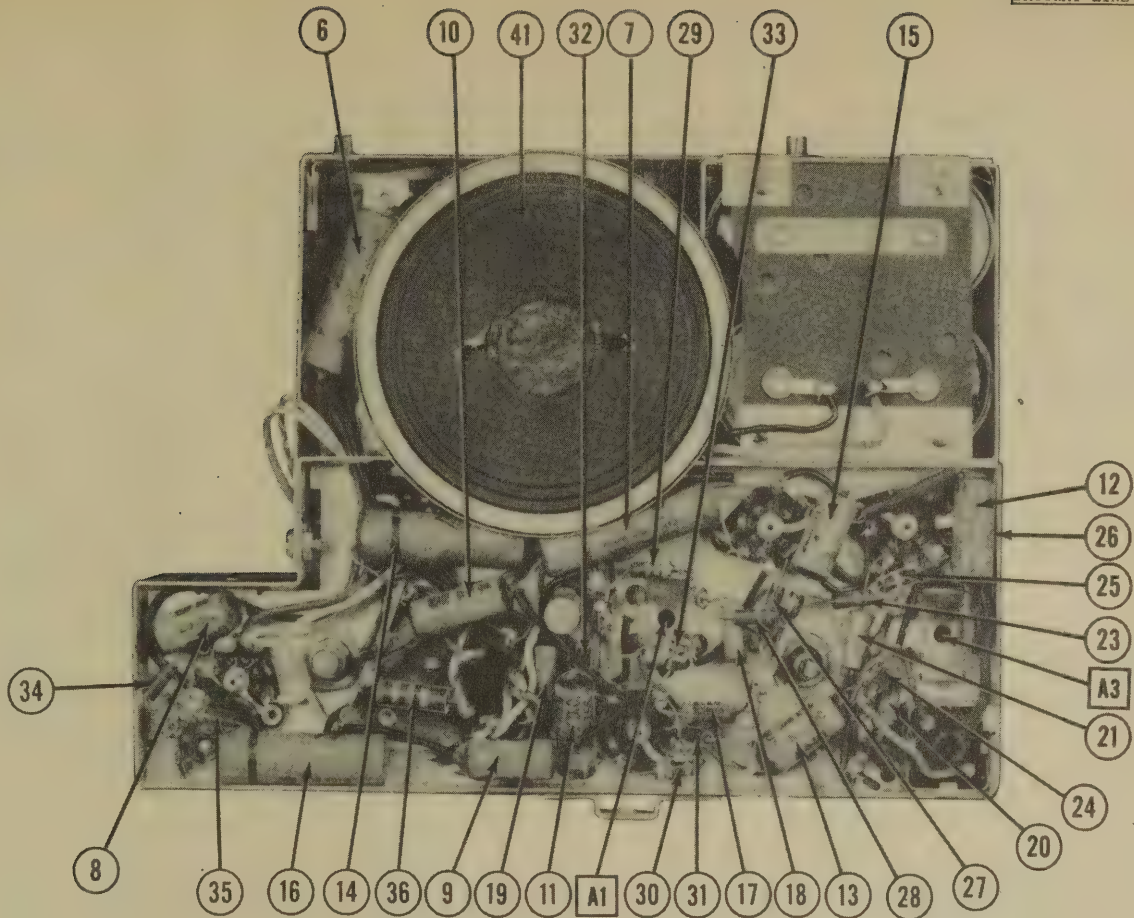
BATTERIES

ITEM No.	VOLTAGE	CLARION PART No.	EYEREDY		INSTALLATION NOTES
			"A"	"B"	
46	6V "A"	7950	4	Used in series	
47	67.5V "B"	7467			

MISCELLANEOUS

ITEM No.	PART NAME	CLARION PART No.	NOTES
48	Switch	A69-175	On-Off
49	Rectifier	A69-174	AC-DC-Batt.
50	2 Gang Var. Cap	A83-291	Selenium
51	Knob	B19-190	(20-430TTF, 20-158 MTF)
		C52-216	Tuning
		B52-217	Volume

CHASSIS—BOTTOM VIEW



DAVID BOGEN MODEL G-50

TRADE NAME	David Bogen, Model G-50
MANUFACTURER	David Bogen Co., Inc., 663 Broadway, New York 12, N.Y.
TYPE SET	AC Operated 9 Tube Amplifier
TUBES (NINE)	Types, 6SC7 Mic. 1 Amp., 6SC7 Mic. 2 Amp., 6SC7 AF-Phono Amp., 6SL7GT AF-Phase Inv., 6SN7GT Driver, (2) 807 Power Output, 5Y3GT Rectifier, 5R4GY Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	1.8 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6SC7	0V.	66VDC	0V.	0V.	73VDC	.8VDC	-21VDC#	-21VDC#	-
2	6SC7	0V.	68VDC	0V.	0V.	73VDC	.8VDC	-21VDC#	-21VDC#	-
3	6SC7	0V.	87VDC	0V.	0V.	100VDC	1.3VDC	-21VDC#	-21VDC#	-
4	6SL7GT	0V.	140VDC	2VDC	7.2VDC	183VDC	78VDC	-21VDC#	-21VDC#	-
5	6SN7GT	-9VDC	290VDC	-8VDC	-9VDC	290VDC	-8VDC	-21VDC#	-21VDC#	-
6	807	-21VDC#	290VDC	-20VDC	0V.	-21VDC#	-	-	-	420VDC
7	807	-21VDC#	290VDC	-20VDC	0V.	-21VDC#	-	-	-	450VDC
8	5Y3GT	0V.	300VDC	0V.	300VAC	0V.	300VAC	0V.	300VDC	-
9	5R4GY	0V.	470VDC	0V.	580VAC	0V.	580VAC	0V.	470VDC	-

#READ 6.8VAC BETWEEN FILAMENT PINS.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6SC7	0Ω	390KΩ	500KΩ	500KΩ	290KΩ	1KΩ	480Ω	480Ω	-
2	6SC7	0Ω	390KΩ	500KΩ	500KΩ	290KΩ	1KΩ	480Ω	480Ω	-
3	6SC7	0Ω	390KΩ	500KΩ	29KΩ	340KΩ	2KΩ	480Ω	480Ω	-
4	6SL7GT	500KΩ	290KΩ	3.5KΩ	300KΩ	290KΩ	200KΩ	480Ω	480Ω	-
5	6SN7GT	1 Meg.	10KΩ	1.9KΩ	1 Meg.	10KΩ	1.9KΩ	480Ω	480Ω	-
6	807	480Ω	10KΩ	540Ω	0Ω	480Ω	-	-	-	40KΩ
7	807	480Ω	10KΩ	560Ω	0Ω	480Ω	-	-	-	40KΩ
8	5Y3GT	0Ω	10KΩ	INF.	580Ω	INF.	580Ω	INF.	10KΩ	-
9	5R4GY	INF.	40KΩ	INF.	38Ω	INF.	35Ω	INF.	40KΩ	-

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
- 6 - All controls at minimum an proper output load connected.

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DATE 12/47

SET #30

FOLDER #4720-6

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		DAVID BOGEN PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Mic. 1 Amp.	6SC7	6SC7	8S	
2	Mic. 2 Amp.	6SC7	6SC7	8S	
3	AF-Phono Amp.	6SC7	6SC7	8S	
4	AF-Phase Inv.	6SL7GT	6SL7GT	9ED	
5	Driver Output	6SN7GT	6SN7GT	9ED	
6	Power Output	907	907	T-5BB	
7	Rectifier	5Y3GT	5Y3GT	5T	
8		5846Y	5846Y	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

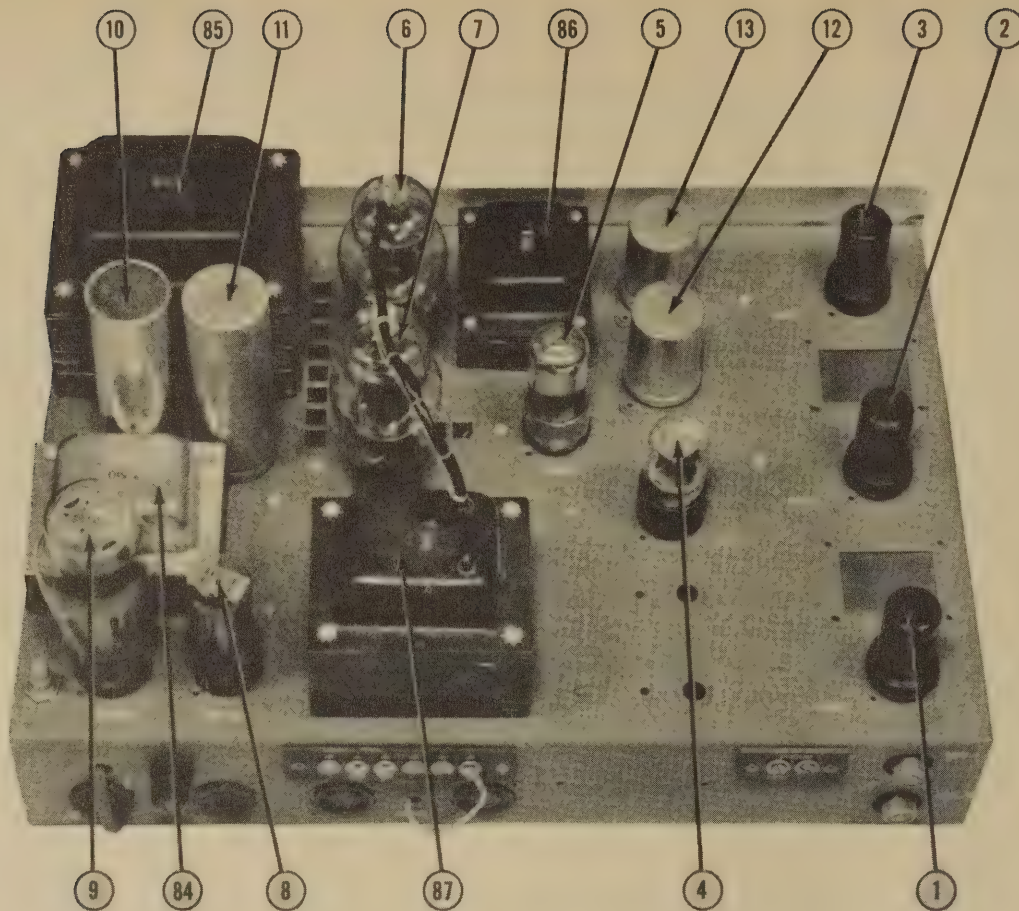
ITEM No.	RATING		DAVID BOGEN PART No.	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT		MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
10A	8	450		RV282	D-2x3-450	CL-88	GLS-450-8-8	KR588A	Filter - Blue
B	8	600							" - Red
11	4	450		HS693	D-4-600	AP-46	GL600-4	KR604	Filter
12A	10	450		FP231	DH-2x3-450	EL-210	AF2222J	UP111145	Decoupling
B	10	450							"
13A	5	450		FF434	DY-4x10-450	EL-410	AF2222J	UP111145	"
B	5	450							"
C	5	450							"
D	5	450							"
14	50	50		TC39	M-50-50	TA-550	PRS50-50	BR505	Bias Filter
15	50	25		TC29	M-50-25	TA-50	PRS25-50	BR502	Cathode Bypass
16	50	25		TC29	M-50-25	TA-50	PRS25-50	BR502	"
17	50	25		TC29	M-50-25	TA-50	PRS25-50	BR502	"
18	50	25		TC29	M-50-25	TA-50	PRS25-50	BR502	"
19	100	25		TC2501	M-100-25	UHC-102	PRS25-100	BR251	"
20	100	25		TP426	M-100-25	UHC-102	PRS25-100	BR251	"
21	.05	400		TP426	S-4-05	TC-15	484-05	D7485	Audio Coupling
22	.05	400		TP426	S-4-05	TC-15	484-05	D7485	"
23	.05	400		TP426	S-4-05	TC-15	484-05	D7485	"
24	.001	600		TP404	S-6-001	TC-21	684-001	D66D1	Tone Comp.
25	.05	400		TP406	S-4-05	TC-15	484-05	D7485	Audio Coupling
26	.01	400		TP421	S-4-01	TC-11	484-01	D7481	Tone Comp.
27	.25	400		TP421	S-4-25	TC-2	484-25	D7481	Audio Coupling
28	.05	400		TP426	S-4-05	TC-15	484-05	D7485	"
29	.25	400		TP430	S-4-25	TC-2	484-25	D7485	"
30	.05	400		TP426	S-4-05	TC-15	484-05	D7485	"
31	.1	400		TP428	S-4-1	TC-1	484-1	D7481	Line Filter
32	.02	400		TP423	M-0-02	TC-12	484-02	D7482	Output Shunt
33	500	500		MC245	MO-5-35	LFM-35	1468-0005	SW5T5	Tone Comp. Silver
34	100	500		MCB235	MO-5-31	NS-31	1469-001	SR5T1	"
35	100	500		MCB235	MO-5-31	NS-31	1469-001	SR5T1	"
36	240	500		MC240	MO-5-325	LFM-325	1468-00025	SW5T25	"
37	50	500		MC225	MO-5-45	LFM-45	1468-00005	SW5Q5	" *

*Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		DAVID BOGEN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
38A	25K Ω		MP24		M-41-W	Mike 1 Control
39A	25K Ω		MP24		Not Req.	Attach to 38A per Instructions
40A	500K Ω		MP24		Not Req.	Mike 2 Control
41	1 Reg.	V129		D13-133 A	Not Req.	Attach to 39A per Instructions
					Not Req.	Phono Control
					Not Req.	Attach to 40A per Instructions
					Not Req.	Tone Control

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	DAVID BROWN PART No.	IRC PART No.	
42	500K	1/2		BTS-470K	Gm.-Blk.-Yl. 1st Mic. Amp. Grid
43	100K	1/2		BTS-100K	Br.-Blk.-Red 1st Mic. Amp. Cathode
44	240K	1/2		BTS-270K	Red-Yl.-Yl. 1st Mic. Amp. Plate Load
45	500K	1/2		BTS-470K	Gm.-Blk.-Yl. 1st Mic. Amp. Grid
46	150K	1/2		BTS-150K	Br.-Gm.-Yl. 1st Mic. Amp. Plate Load
47	100K	1/2		BTS-100K	Br.-Blk.-Yl. Feedback
48	100K	1/2		BTS-100K	Br.-Blk.-Yl. Decoupling

The Bogen amplifier Model G-50 has its output connection terminated at strips marked OUTPUT. Standard speaker voice coil impedances of 4, 8 and 15 ohms are provided. In addition, two constant voltage taps of 70 and 140 volts, respectively, are provided. Speaker lines may be connected directly to the output strip, connections being made to Common, or #1 terminal, and to the taps required. This amplifier is also provided with two built-in speaker sockets. Connections are made to these sockets by standard 5 prong connector plugs. The impedance or voltage at the sockets may be selected by connecting the lug on the flexible lead to the desired terminal on the output strip.

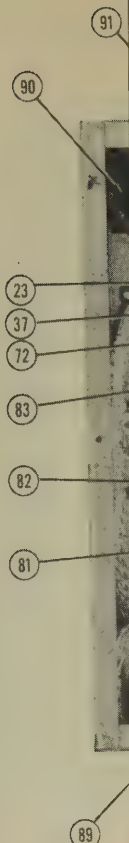
IMPEDANCE TAP: For speaker line lengths of 25 to 30 feet, use the most convenient output tap, depending on number and type speakers used and power to be delivered to each speaker. For longer distances between amplifier and speakers, the following figures may be used as a guide. Using standard #18 speaker wire, the maximum lengths of line for use of the voice coil impedances are as follows:
 4 ohms - 45 feet, 8 ohms - 90 feet, 15 ohms - 180 feet
 These lengths of line give a loss of approximately 15% of the output power. For longer lines the constant voltage outputs should be used.

Correct speaker matching transformer taps, to give desired speaker power when connected to one of the constant voltage outputs, may be calculated by means of the formula: $Z = \frac{E^2}{P}$

For the 140 volt tap
 Required Impedance = $\frac{20,000}{\text{Desired Power}}$ Example: To obtain a 2 watt output
 $Z = \frac{20,000}{2} = 10,000 \text{ ohms}$

For the 70 volt tap
 Required Impedance = $\frac{5,000}{\text{Desired Power}}$ Example: To obtain a 5 watt output
 $Z = \frac{5,000}{5} = 1,000 \text{ ohms}$

CHASSIS—BOTTOM VIEW



The recommended BOGEN transformer and proper impedance tap for commonly used speaker input powers are tabulated below. Impedances listed are based on a nominal 8 ohm voice coil impedance. If a 15 ohm voice coil speaker is employed, use a transformer incorporating a tap marked at 1/2 the value shown on the table. For example, to obtain 1 watt on a 70 volt line with an 8 ohm voice coil speaker, the table indicates use of a transformer tapped at 5,000 ohms. If a 15 ohm voice coil speaker is used, a tap marked 2,500 ohms should be employed. If a 4 ohm voice coil speaker is employed use a transformer incorporating a tap marked at 2 times the value shown on the table. In the example above, the tap for a 4 ohm speaker will be 10,000 ohms.

Nominal Power	For 70 V. Tap		For 140 V. Tap		Transformer
	1/2 Watt	1 Watt	2 Watts	5 Watts	
1/2 Watt	10,000	5,000	2,500	1,000	T45C
1 Watt	5,000	2,500	1,000	500	T45C
2 Watts	2,500	1,000	500	250	T25C
5 Watts	1,000	500	250	125	T25B
10 Watts	500	250	125	62.5	T5B
20 Watts	250	125	62.5	31.25	T5A

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		DAVID BOGEN PART No.	STANDARD REPLACEMENT	PMA BASE TYPE	
1	Mic. 1 Amp.	6SC7	6SC7	8S	
2	Mic. 2 Amp.	6SC7	6SC7	8S	
3	AP-Phono Amp.	6SC7	6SC7	8S	
4	AP-Phase Inv.	6SU7GT	6SU7GT	9BD	
5	Driver	6SN7GT	6SN7GT	9BD	
6	Power Output	807	807	T-5BB	
7	Rectifier	5Y3GT	5Y3GT	5T	
8		5R4GY	5R4GY	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

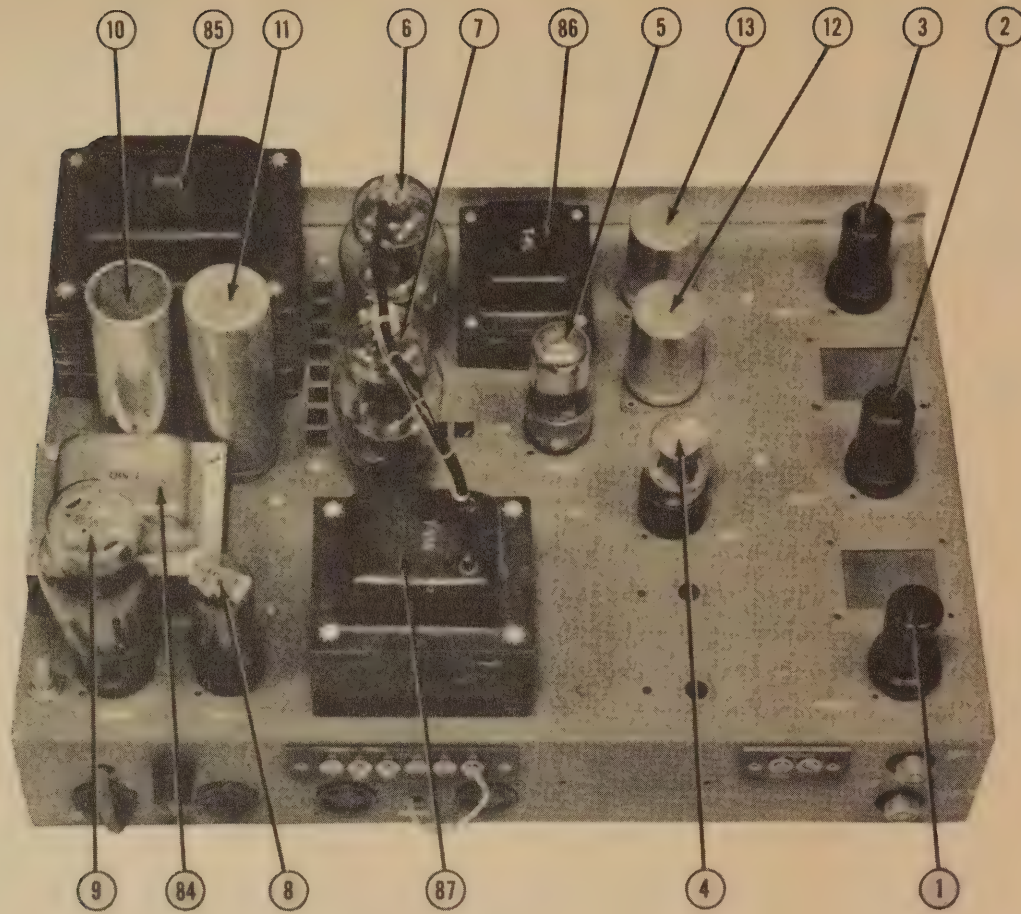
ITEM No.	RATING	DAVID BOGEN PART No.	REPLACEMENT DATA			IDENTIFICATION CODES AND INSTALLATION NOTES
			MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
10A	8 450		RV262	D-2x8-450	CL-88	KR589A
B	8 450					
11A	4 600		H8693	D-4-600	AP-46	KR604
B	4 600		FP231	DH-2x8-450	EL-210	UP111145
13A	10 450					
B	10 450		FP434	DY-4x10-450	EL-410	UP111145
C	5 450					
D	5 450					
14	50 50		TC39	M-50-50	TA-550	BR505
15	50 25		TC29	M-50-25	TA-50	BR502
16	50 25		TC29	M-50-25	TA-50	BR502
17	50 25		TC29	M-50-25	TA-50	BR502
18	50 25		TC29	M-50-25	TA-50	BR502
19	100 25		TC2501	M-100-25	UHC-102	BR251
20	100 25		TC2501	M-100-25	UHC-102	BR251
21	.05 400		TP426	S-4-05	TC-15	D748S
22	.05 400		TP426	S-4-05	TC-15	D748S
23	.05 400		TP426	S-4-05	TC-15	D748S
24	.05 400		TP404	S-6-001	TC-21	D66D1
25	.05 400		TP405	S-4-01	TC-15	D748S
26	.05 400		TP421	S-4-01	TC-11	D748S
27	.05 400		TP430	S-4-05	TC-2	D748S
28	.05 400		TP428	S-4-05	TC-3	D748S
29	.05 400		TP428	S-4-05	TC-3	D748S
30	.05 400		TP428	S-4-05	TC-15	D748S
31	.05 400		TP428	S-4-05	TC-15	D748S
32	.02 400		TP423	VO-4-02	TC-12	D748S
33	500 500		MC243	VO-5-55	1468-0005	SW515
34	100 500		MC243	VO-5-55	1468-0005	SW515
35	100 500		MC243	VO-5-55	1468-0005	SW515
36	240 500		MC240	VO-5-325	1468-00025	SW515
37	50 500		MC225	VO-5-45	1468-00005	SW515

*Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		DAVID BOGEN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
38A	25KΩ	V259	MR24		M-41-W	Mike 1 Control
B	Start	Not Req.	Not Req.		Not Req.	Attach to 38A per instructions
39A	25KΩ	V259	MR24		M-41-W	Mike 2 Control
B	Start	Not Req.	Not Req.		Not Req.	Attach to 39A per instructions
40A	500KΩ			D13-133 A	M-60-Z	Phono Control
B	Start				Not Req.	Attach to 40A per instructions
41	1 Meg.	V129				Tone Control

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	DAVID BOGEN PART No.	IRC PART No.	
42	500K Ω	1/2		BTS-470K	Grn.-Blk.-Yl. 1st Mic. Amp. Grid
43	1000 Ω	1/2		BTS-1000	Br.-Blk.-Red 1st Mic. Amp. Cathode
44	240K Ω	1/2		BTS-270K	Red-Yl.-Yl. 1st Mic. Amp. Plate Load
45	500K Ω	1/2		BTS-470K	Grn.-Blk.-Yl. 1st Mic. Amp. Grid
46	150K Ω	1/2		BTS-150K	Br.-Grn.-Yl. 1st Mic. Amp. Plate Load
47	100K Ω	1/2		BTS-100K	Br.-Blk.-Yl. Decoupling
48	100K Ω	1/2		BTS-100K	Br.-Blk.-Yl. Decoupling
49	500K Ω	1/2		BTS-470K	Grn.-Blk.-Yl. 2nd Mic. Amp. Grid
50	1000 Ω	1/2		BTS-1000	Br.-Blk.-Red 2nd Mic. Amp. Cathode
51	240K Ω	1/2		BTS-270K	Red-Yl.-Yl. 2nd Mic. Amp. Plate Load
52	500K Ω	1/2		BTS-470K	Grn.-Blk.-Yl. 2nd Mic. Amp. Grid
53	150K Ω	1/2		BTS-150K	Br.-Grn.-Yl. 2nd Mic. Amp. Plate Load
54	100K Ω	1/2		BTS-100K	Br.-Blk.-Yl. Decoupling
55	100K Ω	1/2		BTS-100K	Br.-Blk.-Yl. Decoupling
56	240K Ω	1/2		BTS-220K	Red-Yl.-Yl. Series Phone
57	24K Ω	1/2		BTS-22K	Red-Yl.-Or. Isolation
58	24K Ω	1/2		BTS-22K	Red-Yl.-Or. Isolation
59	2000 Ω	1/2		BTS-2200	Red-Blk.-Red 1st AF Cathode
60	240K Ω	1/2		BTS-270K	Red-Yl.-Yl. 1st AF Plate Load
61	47K Ω	1		BTA-47K	Yl.-Vl.-Or. 1st AF Plate Decoupling
62	47K Ω	1		BTA-47K	Yl.-Vl.-Or. Phone Amp. Plate Load
63	24K Ω	1		BTA-22K	Red-Yl.-Or. Decoupling
64	10K Ω	1		BTA-10K	Br.-Blk.-Or. Decoupling
65	470K Ω	1/2		BTS-470K	Yl.-Vl.-Yl. Tone Compensation
66	500K Ω	1/2		BTS-470K	Grn.-Blk.-Yl. 2nd AF Grid
67	470 Ω	1/2		BTS-470	Yl.-Vl.-Br. 2nd AF Cathode
68	3300 Ω	1/2		BTS-3300	Or.-Or.-Red 2nd AF Cathode
69	3900 Ω	1/2		BTS-3900	Or.-White-Red Phase Inverter Cathode
70	240K Ω	1/2		BTS-220K	Red-Yl.-Yl. Phase Inverter Cathode
71	1 Meg.	1/2		BTS-1 Meg.	Br.-Blk.-Grn. Phase Inverter Cathode - See Note
72	100K Ω	1/2		BTS-100K	Br.-Blk.-Yl. Phase Inverter Grid
73	240K Ω	1/2		BTS-270K	Red-Yl.-Yl. Phase Inverter Plate Load
74	240K Ω	1/2		BTS-270K	Red-Yl.-Yl. 2nd AF Grid
75	10K Ω	1		BTA-10K	Br.-Blk.-Or. Decoupling
76	47K Ω	1/2		BTS-47K	Yl.-Vl.-Or. Feedback
77	1 Meg.	1/2		BTS-1 Meg.	Br.-Blk.-Grn. Driver Grid
78	1 Meg.	1/2		BTS-1 Meg.	Br.-Blk.-Grn.
79	1500 Ω	1/2		BTS-1500	Br.-Grn.-Red Driver Cathode
80	1500 Ω	1/2		BTS-1500	Br.-Grn.-Red Driver Cathode
81A	40K Ω	1/2		EP-50K	Bladder
82	1000 Ω	20		DHA-1000	Bias Adjustment

Note-Not used in all models.

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (10 CURRENT 1000 μ)	DAVID BOGEN PART NO.	STANCOR PART NO.	THORDARSON PART NO.	MERIT PART No.	
83	.062	190 Ω	5.5 Henries	T501B	C-2303†			
84	.16	50 Ω	2.5 Henries	T510B		T20C55†	C-2304†	

†Drill one new mounting hole. †Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	DAVID BOGEN PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
85	117V AC @ 1.8A	600V CT @ .160A	1160V CT @ .062A	5.5V AC @ 2.0A	T361B			
			800V 4 @ 2.0A	5.5V AC @ 2.0A				
			800V 5 @ 4.6A	6.8V AC @ 4.6A				

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	INDUCTANCE	DC RES.	DAVID BOGEN PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
86	10 Henries CT	140 Ω CT	T110B		T20D74†		†Connect primary only.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			
	IMPEDANCE	DC RES.	PRI.	SEC.	DAVID BOGEN PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
87	3000 Ω CT	4 Ω CT	62 Ω	.25 Ω	T256B		T22872‡	
			8 Ω	.35 Ω				
			15 Ω	.4 Ω				
			70V	8 Ω				
			140V					

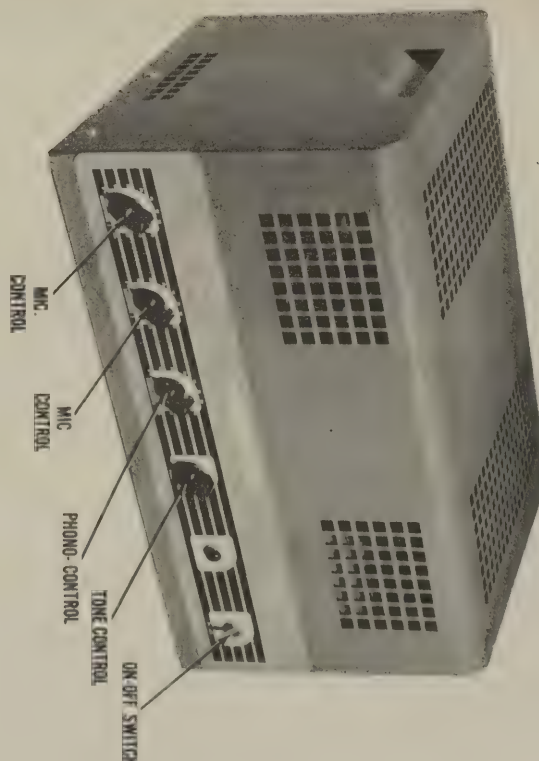
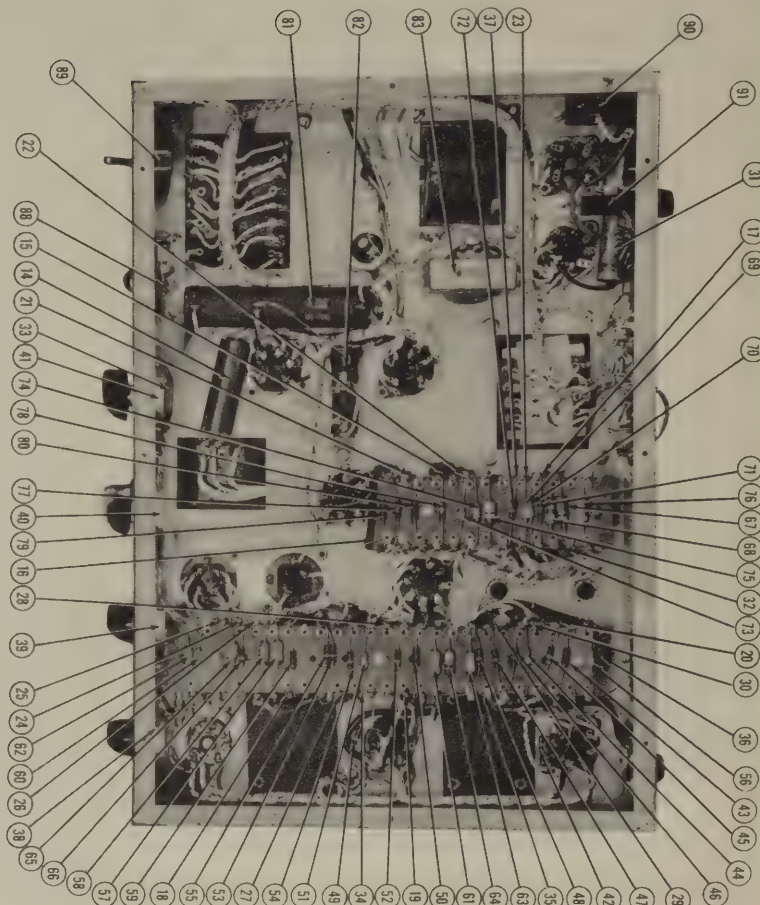
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					DAVID BOGEN PART No.		
88	Bayonet	6-8	0.25	Blue			Type 44

MISCELLANEOUS

ITEM No.	PART NAME	DAVID BOGEN PART No.	NOTES
89	On-Off Switch		(SPST)
90	Switch		Interlock
91	Fuse		3 Amp.

CHASSIS—BOTTOM VIEW



The Bogen amplifier Model G-50 has its output connection terminated at strips marked OUTPUT. Standard speaker voice coil impedances of 4, 8 and 15 ohms are provided. In addition, two constant voltage taps of 70 and 140 volts, respectively, are provided. Speaker lines may be connected directly to the output strip, connections being made to Common, or #1 terminal, and to the taps required. This amplifier is also provided with two built-in speaker sockets. Connections are made to these sockets by standard 5 prong connector plugs. The impedance or voltage at the sockets may be selected by connecting the lug on the flexible lead to the desired terminal on the output strip.

IMPEDANCE TAP: For speaker line lengths of 25 to 30 feet, use the most convenient output tap, depending on number and type speakers used and power to be delivered to each speaker. For longer distances between amplifier and speakers, the following figures may be used as a guide. Using standard #18 speaker wire, the maximum lengths of line for use of the voice coil impedances are as follows:

4 ohms - 45 feet, 8 ohms - 90 feet, 15 ohms - 180 feet

These lengths of line give a loss of approximately 15% of the output power. For longer lines the constant voltage outputs should be used.

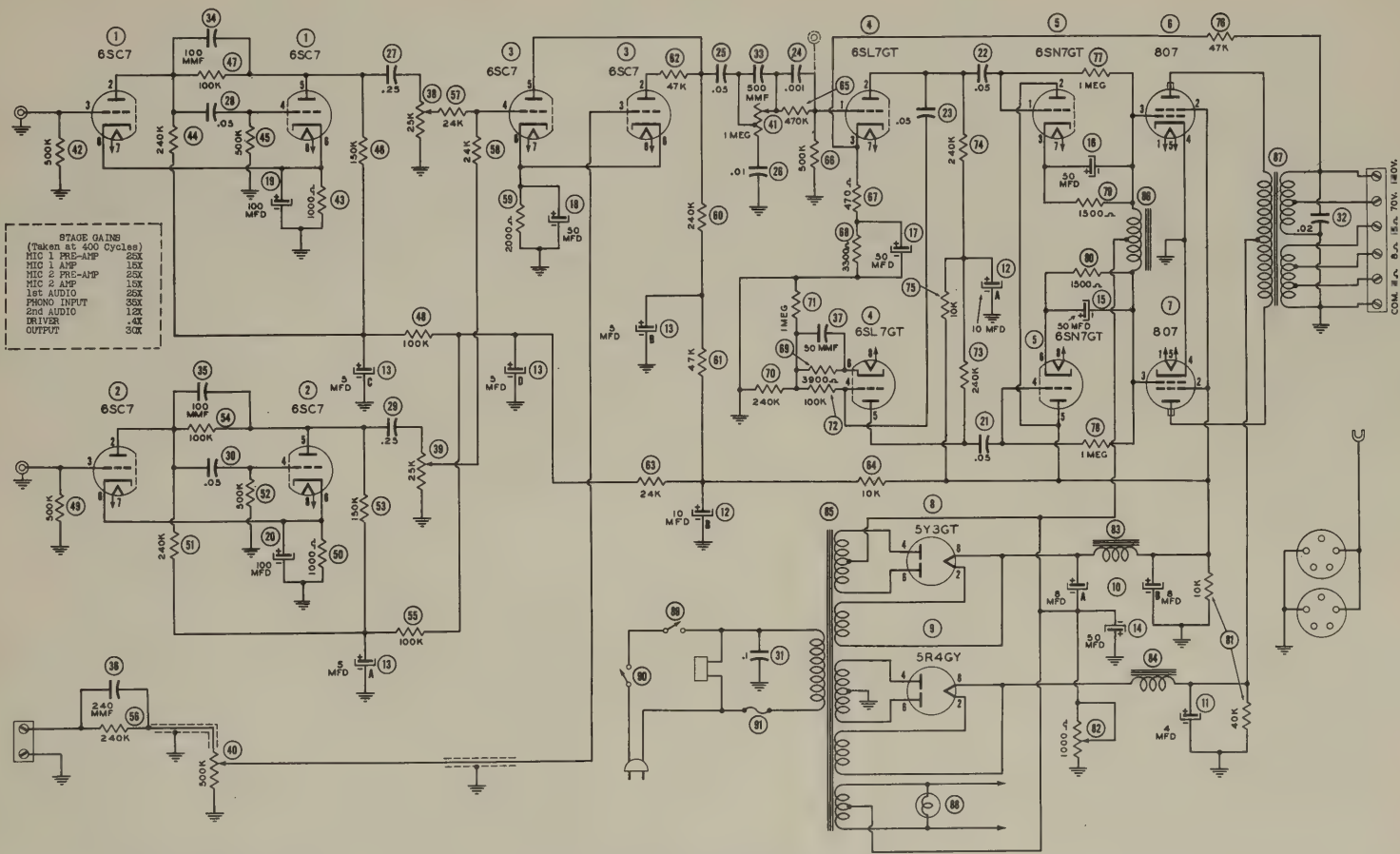
Correct speaker matching transformer taps, to give desired speaker power when connected to one of the constant voltage outputs, may be calculated by means of the formula: $Z = \frac{E^2}{P}$

For the 140 volt tap
Required Impedance = $\frac{20,000}{\text{Desired Power}}$ Example: To obtain a 2 watt output
 $Z = \frac{20,000}{2} = 10,000 \text{ ohms}$

For the 70 volt tap
Required Impedance = $\frac{5,000}{\text{Desired Power}}$ Example: To obtain a 5 watt output
 $Z = \frac{5,000}{5} = 1,000 \text{ ohms}$

The recommended BOGEN transformer and proper impedance tap for commonly used speaker input powers are tabulated below. Impedances listed are based on a nominal 8 ohm voice coil impedance. If a 15 ohm voice coil speaker is employed, use a transformer incorporating a tap marked at 1/2 the value shown on the table. For example, to obtain 1 watt on a 70 volt line with an 8 ohm voice coil speaker, the table indicates use of a transformer tapped at 5,000 ohms. If a 15 ohm voice coil speaker is used, a tap marked 2,500 ohms should be employed. If a 4 ohm voice coil speaker is employed use a transformer incorporating a tap marked at 2 times the value shown on the table. In the example above, the tap for a 4 ohm speaker will be 10,000 ohms.

Nominal Power	For 70 V. Tap	Transformer	For 140 V. Tap	Transformer
1/2 Watt	10,000Ω	T45C		
1 Watt	5,000Ω	T45C		
2 Watts	2,500Ω	T25C	10,000Ω	T45C
5 Watts	1,000Ω	T5B	4,000Ω	T25B
10 Watts	500Ω	T5B	2,000Ω	T5B
20 Watts			1,000Ω	T5A

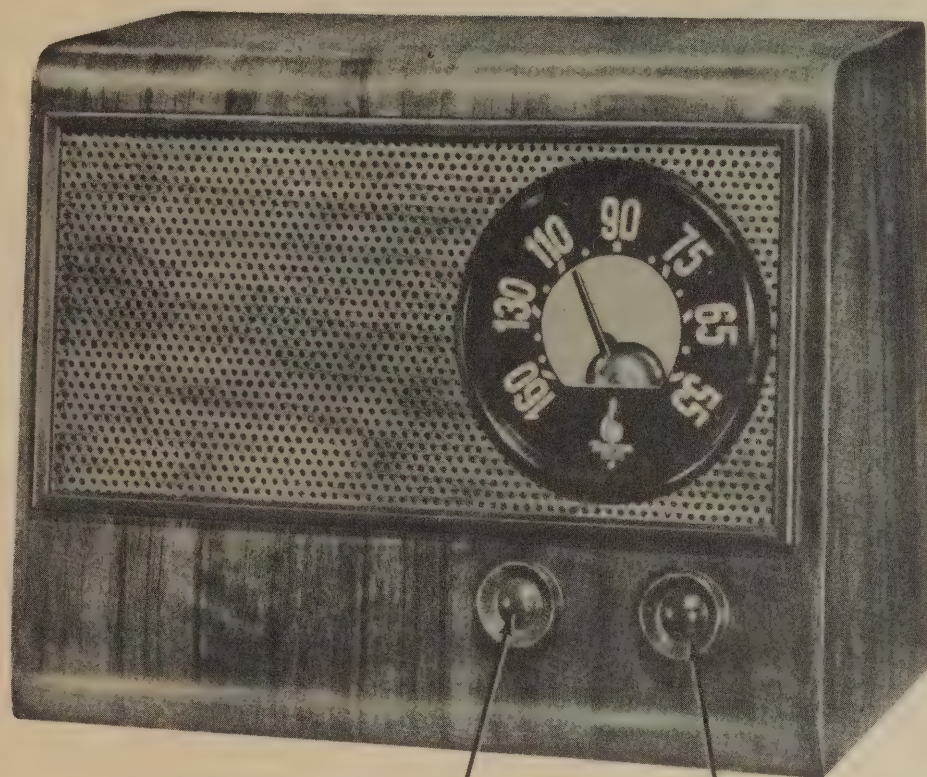


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THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4720-6

DATE 12/47
SET #30
FOLDER #4720-6



VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

EMERSON MODEL 519

TRADE NAME	Emerson, Model 519 (Ch. 120030)		
MANUFACTURER	Emerson Radio & Phono Corp., 111 8th Ave., New York, N.Y.		
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna		
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier		
POWER SUPPLY	105-125 Volts AC-DC		
TUNING RANGE—BROADCAST	540-1620KC	RATING	.240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn variable fully closed and set pointer at horizontal position. Use isolation trans. if available. If not, connect capacitor in series with the low side of the signal generator and B-. Set volume control at maximum volume and keep output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.05 MFD	High side to stator of rear section of variable. Low side to B-.	455KC	High freq. end (Variable fully open.)	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1425KC	1425KC	"	A5	Connect output of signal generator to loop of a few turns of wire and radiate signal in to receiver loop. Space at least 15 inches. Adjust for maximum output.
3		"	"	Tune for maximum output.	"	A6	"

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DATE 12/47 SET #30 FOLDER #4720-7

EMERSON MODEL
519 (Ch. 120030)

EMERSON MODEL
519 (Ch. 120030)

PARTS LIST AND DESCRIPTIONS

EMERSON MODEL
519 (Ch. 120030)

CHASSIS—TOP VIEW

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			RMA BASE TYPE	INSTALLATION NOTES
		EMERSON PART No.	STANDARD REPLACEMENT			
1	Converter	12SA7	12SA7		8R	
2	IF Amp.	12SK7	12SK7		8N	
3	Det.-AVC-AF	12SQ7	12SQ7		8Q	
4	Power Output	50L6GT	50L6GT		7AC	
5	Rectifier	35Z5GT	35Z5GT		6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		EMERSON PART No.	MALLOY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	30 CAP.	925000	2N520	DSB-5030-150	TA-530	PRSA150-50-30 Filter - Red
7	150					
8	50					
9	2.00	920050	TP429	8-4-2	TC-2	484-02 Line Isolation
10	.05	920030	TP426	MPH 4-05	TC-15	484-05 Line Filter
11	.02	920020	TP423	S-4-02	TC-12	484-02 50L6 Plate Bypass
12	.02	920010	TP404	S-6-001	TC-21	684-001 DT6S2 Audio Coupling
13	.001	920010	TP405	S-6-002	TC-22	684-002 DT6D1 Plate Bypass
14	.002	920040	TP428	S-4-1	TC-1	484-1 DT6D2 Audio Coupling
15	1					
16	200					
17	500					
18	220					
19	50000					
20	50000					
21	50000					
22	50000					
23	50000					
24	50000					
25	50000					
26	50000					

CONTROLS

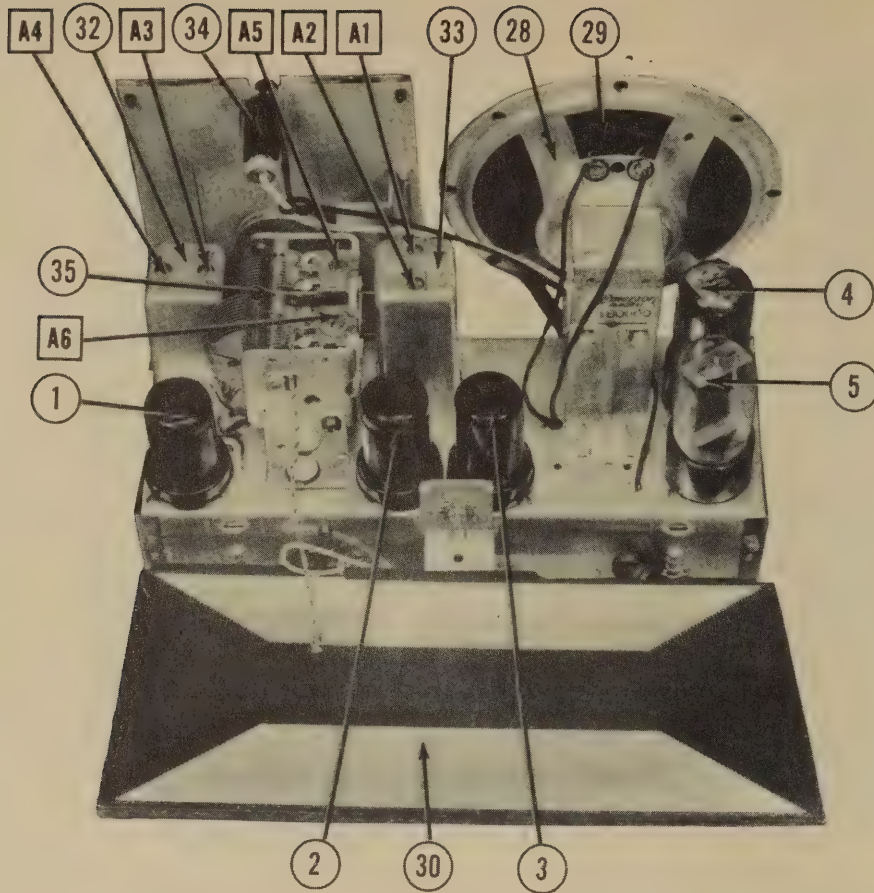
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		EMERSON PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
15A	500KΩ	390010	UML56	D11-133	AF-58-S	Volume Control
15B	500KΩ	390010	SS25	E	KSS-3	Attach to 15A per instructions
15C	Switch		M26	41	SM-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		EMERSON PART No.	IRC PART No.		
16	15 Meg.	397000	BTS-15 Meg.		Br.-Grn.-Blue AVC Network
17	22KΩ	310810	BTS-22K		Red-Red-Or. Osc. Grid
18	3.3 Meg.	321330	BTS-3.3 Meg.		Or.-Or.-Grn. AVC Network
19	15 Meg.	397000	BTS-15 Meg.		Br.-Grn.-Blue 1st AF Grid
20	470KΩ	321130	BTS-470K		Yl.-Vi.-Yl. 1st AF Plate Load
21	470KΩ	321130	BTS-470K		Yl.-Vi.-Yl. Output Grid
22	150Ω	340290	BW-150		Br.-Grn.-Blk. Output Cathode
23	1000Ω	370490	BTA-1000		Br.-Grn.-Blk. Red Filter
24	220KΩ	321050	BTS-220K		Red-Red-Yl. Line Isolating
25	15Ω	397040	BW-15		Br.-Grn.-Blk. Rectifier Ballast
26	10Ω	340010	BW-10		Br.-Blk.-Blk. Pilot Light Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		EMERSON PART No.	STANCOR PART No.	THORDARN PART No.	MERIT PART No.	
27	2010Ω 3.2Ω	215Q	764000	A-3876*	A-2928*	*Requires one new mounting hole. Add additional filter to reduce hum level.



PARTS LIST AND DESCRIPTIONS (Continued) SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		EMERSON PART No.	JENSEN PART No.	
28	FIELD VC IMP.	180000	ST-105#	#Fabricate new mounting bracket.
29	PM 3.2Ω		Mod. P5-X	
30	GONE DIA. VC DIA.	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		
31	4-5/8"			

R F COILS

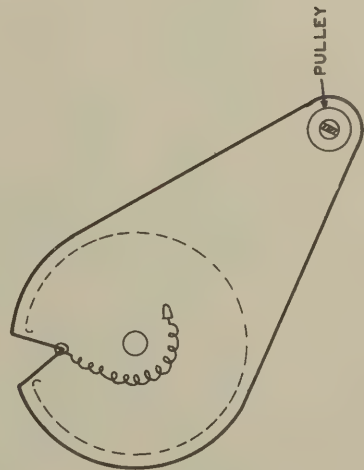
ITEM No.	USE	REPLACEMENT DATA		
		DC RES.	EMERSON PART No.	MEISSNER PART No.
30	Loop Ant.	PRI. 1.5Ω	700200	Alternate 700000
31	Osc. Ckt.	SEC. 5.5Ω	716010	
32	Input IF	23Ω 19Ω	720000	
33	Output IF	23Ω 22Ω	720100	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					EMERSON PART No.		
34	Bayonet	6-8	0.15	Brown	807000		Type 47

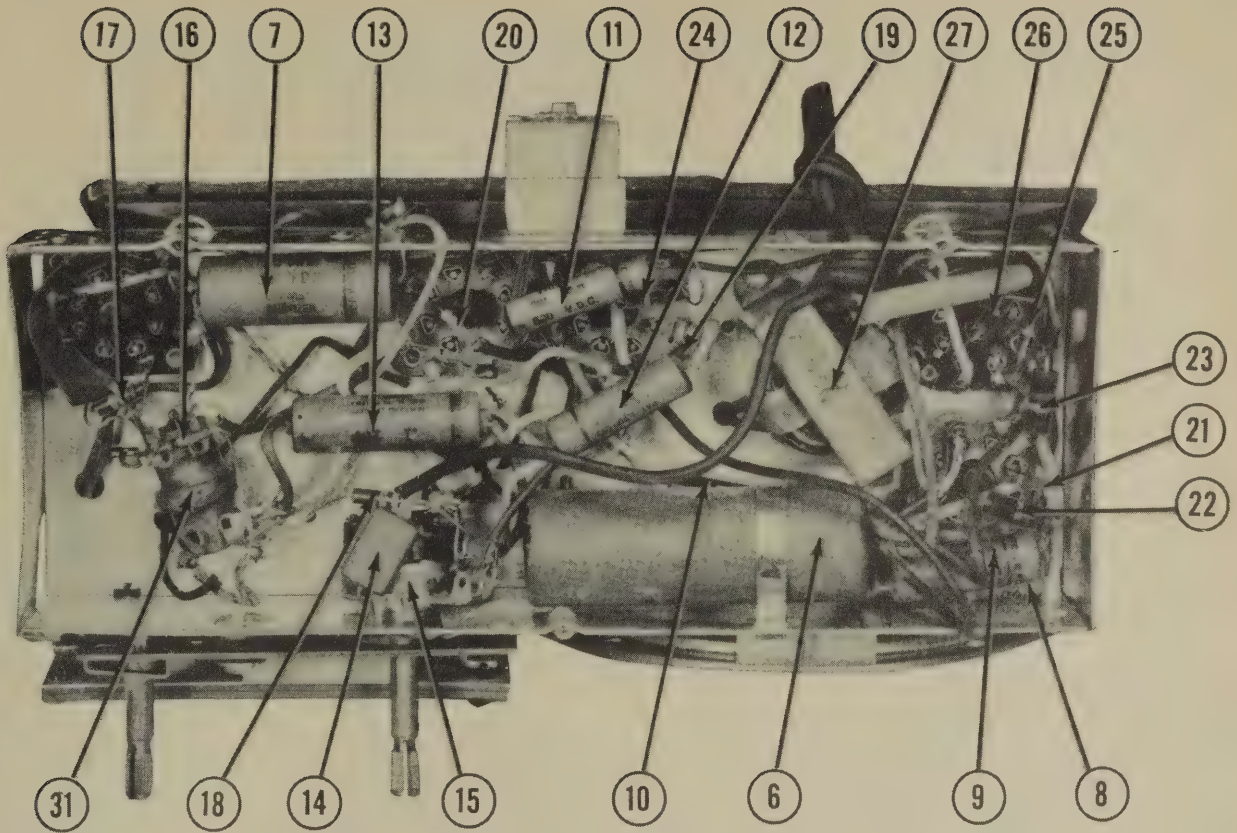
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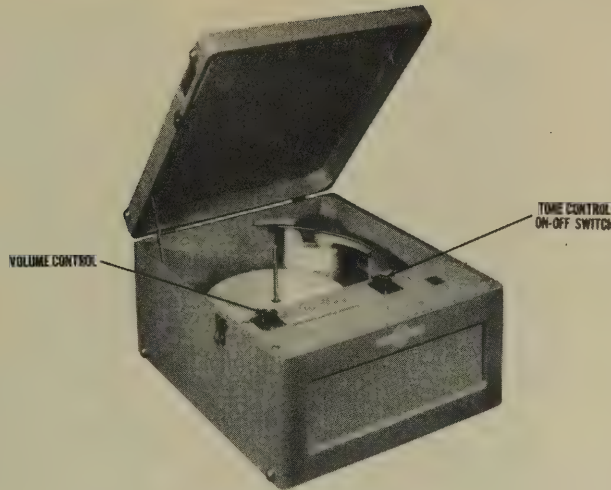
ITEM No.	PART NAME	EMERSON PART No.	NOTES
35	Tuning Cap.	900160	2 Gang Variable Cap.
	Dial	520470	
	Dial Pointer	525120	



DIAL CORD DRIVE

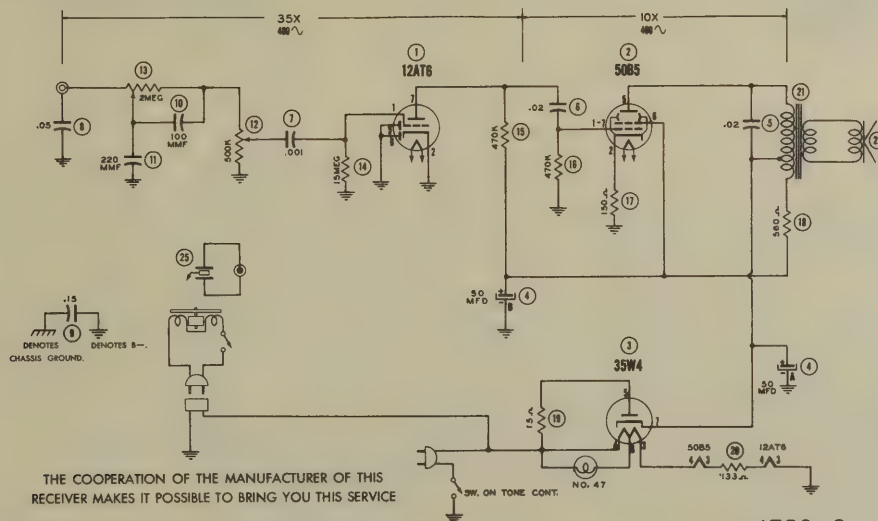
CHASSIS—BOTTOM VIEW





EMERSON MODEL 548

TRADE NAME	Emerson, Model 548 (Ch. 120051)		
MANUFACTURER	Emerson Radio & Phono Corp., 111 8th Ave., New York, N.Y.		
TYPE SET	AC Operated Portable Automatic Record Player with 3 Tube Amp. & Speaker.		
TUBES (THREE)	Types, 12AT6 AF Amp., 50B5 Power Output, 35W4 Rectifier.		
POWER SUPPLY	105-125 Volts AC	RATING	.240 Amp. @ 117 Volts AC



4720-8

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12AT6	-7VDC	0V.	0V.	12VAC	0V.	0V.	50VDC
2	50B5	0V.	9VDC	31.5VAC	80VAC	120VDC	120VDC	0V.
3	35W4	125VDC	0V.	80VAC	117VAC	115VAC	115VAC	127VDC

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RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12AT6	15 Meg.	0Ω	0Ω	13Ω	0Ω	0Ω	700KΩ
2	50B5	500KΩ	165Ω	135Ω	16Ω	60KΩ	60KΩ	500KΩ
3	35W4	60KΩ	1MΩ	180Ω	215Ω	230Ω	210Ω	60KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

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DATE 12/47 SET #30 FOLDER #4720-8

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			RMA BASE TYPE	INSTALLATION NOTES
		EMERSON PART No.	STANDARD REPLACEMENT			
1	AF Amp.	12AT6	12AT6		7BT	
2	Power Output	50B5	50B5		7BZ	
3	Rectifier	35W4	35W4		5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		EMERSON PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
4A	CAP. 50	925009	2N521	D8B-2x50-150	UT-501	PRSA150-50-50	E25515 Filter - Red
B	50	150					Blue
5	.02	400	TP423	8-4-02	TC-12	484-02	D7452 Output Plate Bypass
6	.02	400	TP423	8-4-02	TC-12	484-02	D7452 Audio Coupling
7	.001	600	TP404	8-6-001	TC-22	684-001	D7452
8	.05	400	TP426	8-4-05	TC-15	484-05	D7455 Phono Isolation
9	.15	200	TP417	8-4-15	TC-1	484-15	D7451 Line Isolation
10	100	910020	M2235	M0.5-31	1FM-31	1468-0001	5W5T1 Tone Comp.
11	220	910000	M2240	M0.5-325	1FM-325	1468-00025	5W5T25

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		EMERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
12A	500KΩ	390016	YK401	D13-133	AM-60-Z	Volume Control 390180
B	Start	Not Req.	Not Req.	D13-139	KSS-3	Attach to 12A per instructions
13A	2 Meg.	390070	YK403	D13-139	AM-66-Z	Tone Control
B	Start	Not Req.	Not Req.	E 41	KSS-3	Attach to 13A per instructions
C	Switch				SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		EMERSON PART No.	IRC PART No.		
14	15 Meg.	397000	B7S-15 Meg.	Br.-Grn.-Blue AF Grid	
15	470KΩ	351130	B7S-470K	Yl.-Vi.-Yl. AF Plate Load	
16	470KΩ	351130	B7S-470K	Yl.-Vi.-Yl. Output Grid	
17	150Ω	370290	BM-1-150	Br.-Grn.-Br. Output Cathode	
18	560Ω	340430	B7S-560	Gr.-Blue-Br. Filter	
19	15Ω	340050	BW-1-15	Br.-Grn.-Blk. Rectifier Ballast	
20	1.33Ω	394160		Line Dropping	

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		EMERSON PART No.	STANCOR PART No.	MERIT PART No.	
21	IMPEDANCE PRI. SEC. 20102 3.4Ω	734000	A-3876*	A-2828*	*Add extra filter to reduce hum level.

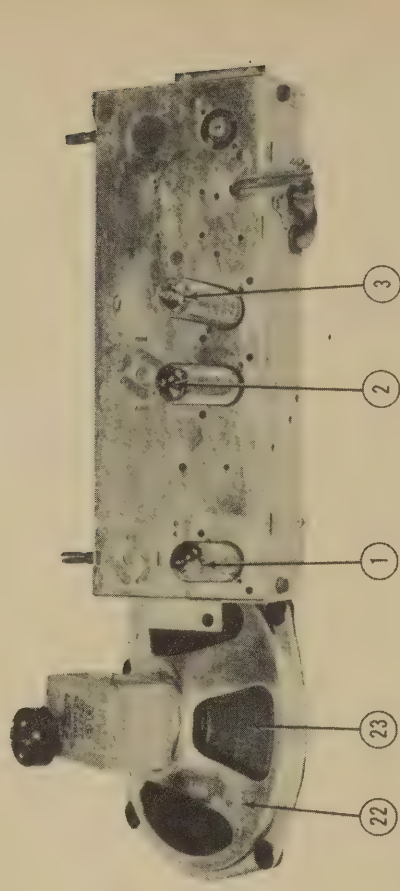
SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		EMERSON PART No.	JENSEN PART No.	
22A	FIELD VC IMP. 3.4Ω	180025	ST-108	
B	PM 3.2Ω	180011	Mod. P6-X	
			SP-110	
23A	COMP. DIA. 6"	NRR-UJCU	Mod. P6-V	
B	6"	NRR-UJCU		

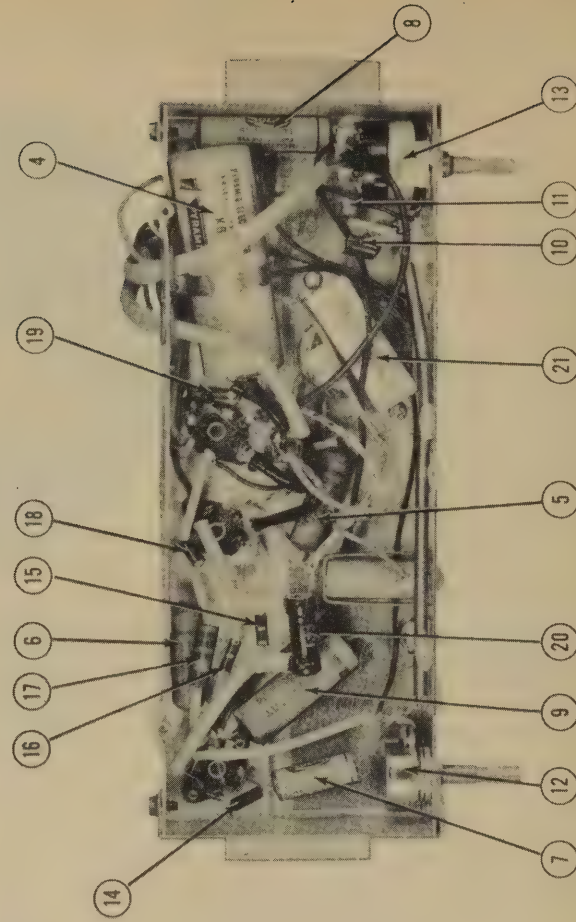
PHONO CARTRIDGE

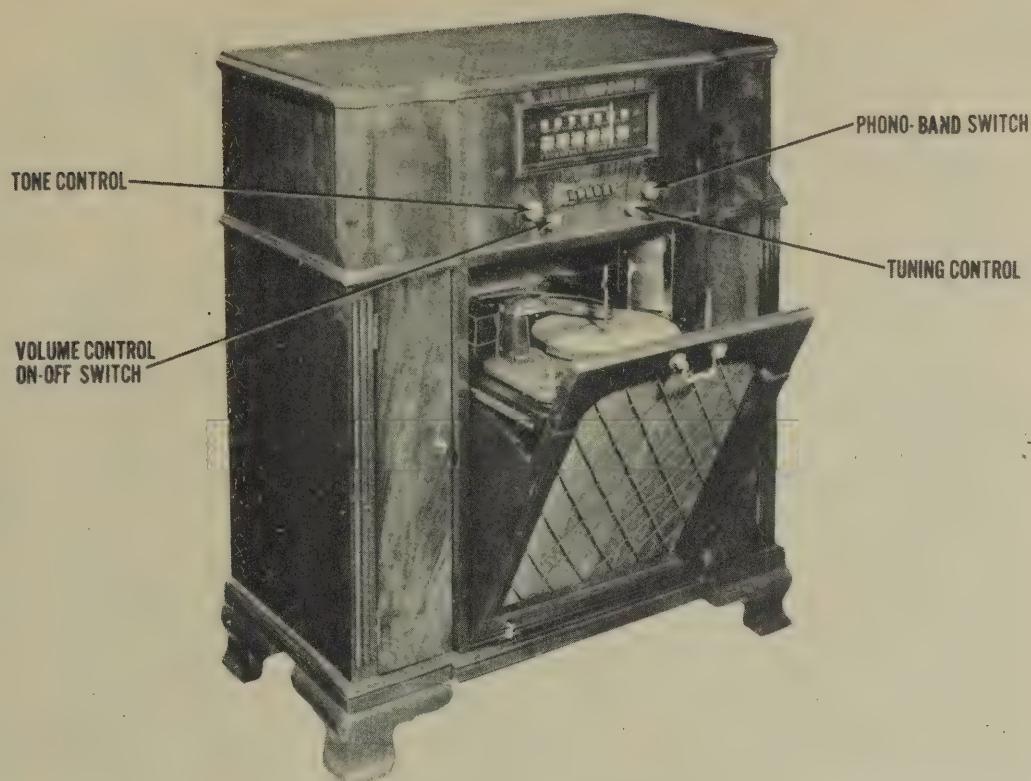
ITEM No.	REPLACEMENT DATA		REMARKS
	EMERSON PART No.	ASTATIC PART No.	
25		L-70-A	

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





AIR CHIEF MODEL 4-A-42

TRADE NAME	Airchief, Model 4-A-42 (Code 177-7-4A42)		
SUPPLIER	The Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, Ohio		
TYPE SET	AC Operated Combination Phono-Radio AM-FM Superheterodyne with Loop Antenna		
TUBES (TEN)	Types, 6AG5 FM RF Amp., 6SB7Y FM Converter, 6SG7 AM RF Amp.-FM IF Amp., 6SA7 AM Converter, 6SF7 AM-FM IF Amp.-AM Det., 6H6 FM Det.-AVC, 6SL7GT AF-Phase Inv., (2) 6V6GT Power Output, 5Y3GT Rectifier		
POWER SUPPLY	110-120 Volts AC	RATING	610 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC	FREQ. MOD.	87.5-108MC
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT			
To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.			
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.			
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.			
Never adjust AM-IF transformers without rechecking FM-IF alignment.			

AM ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 200MFD	High side to blue lead from loop ant. socket. Low side to chassis.	455KC	BC (center position)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2 200MFD	"	1600KC	"	1600KC	"	A5	" " " "
3 200MFD	"	1500KC	"	Tune for maximum output.	"	A6	" " " "
4 200MFD	"	600KC	"	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 and 4 until no further increase in output can be obtained

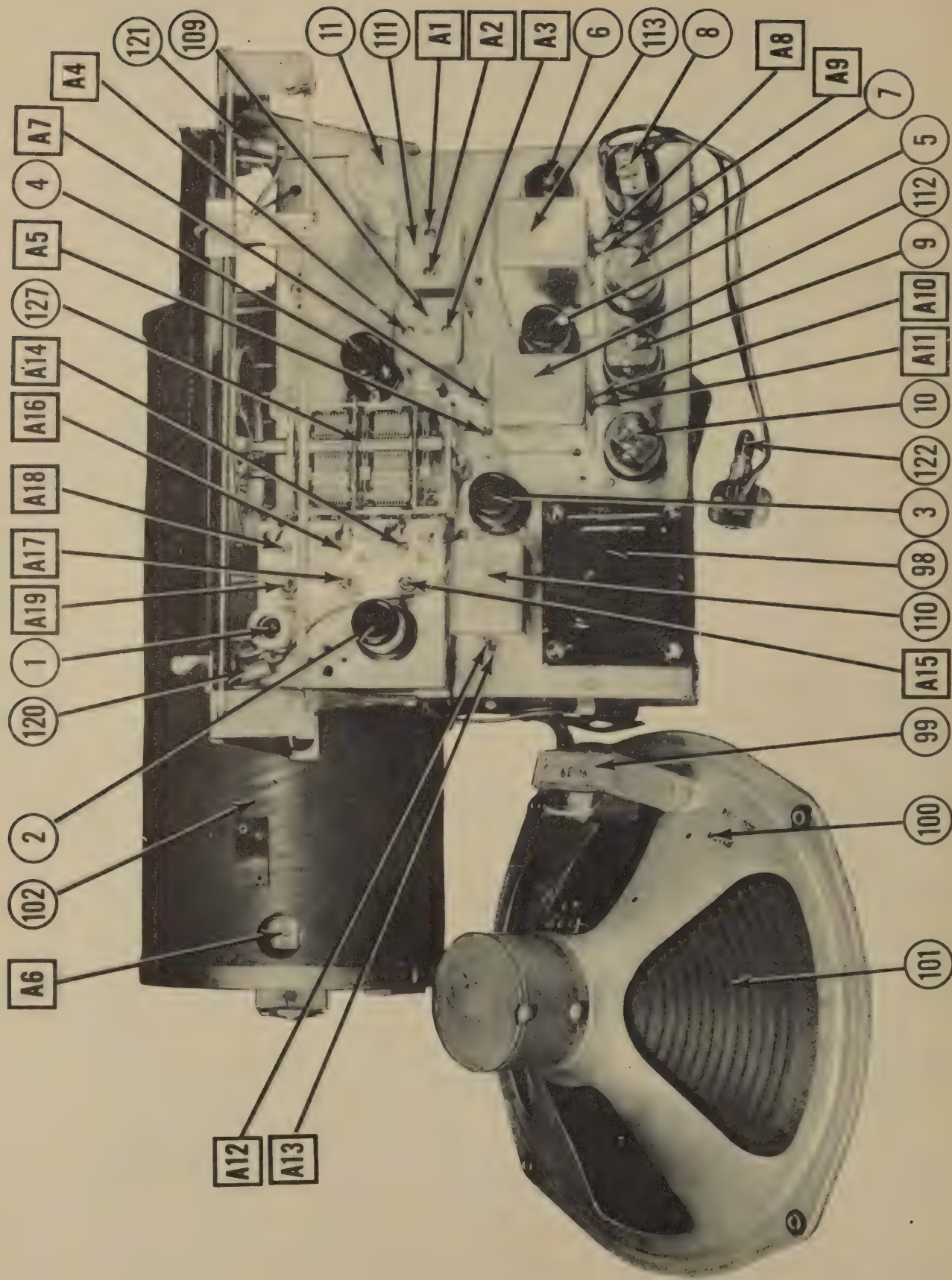
FOR FM ALIGNMENT SEE LAST PAGE OF THIS FOLDER.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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DATE 12/47 SET #30 FOLDER #4720-9



PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIR CHIEF PART No.	STANDARD REPLACEMENT		
1	FM-RF Amp.	6AG5	6AG5	7BD	
2	FM Converter	6SB7	6SB7	8R	
3	AM RF Amp.-FM IF	6SG7	6SG7	8BK	
4	AM Converter	6SA7	6SA7	8R	
5	AM IF Det.-FM IF Amp.	6SF7	6SF7	7AZ	
6	FM Det.-AVC	6H6	6H6	7Q	
7	Audio Amp. & Phase Inv.	6SL7GT	6SL7GT	8BD	
8	Power Output	6V6GT	6V6GT	7AC	
9		6V6GT	6V6GT	7AC	
10	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES AND INSTALLATION NOTES
		AIR CHIEF PART No.	MALLORY PART No.	SOLAR PART No.	
11A	30	25214	FP429	DY-403	EL-424
11B	40				
11C	20				
12	25				
13	4	25316	TP400	M-4-150	TA-55
14	50	25316	TP408	MP-6-005	TA-55
15	.005	25301	TP406	S-6-003	TC-23
16	.003		TP406	S-6-003	TC-23
17	.01	25194	TP421	S-4-01	TC-11
18	.02	25195	TP412	S-6-02	TC-12
19	.02	25194	TP421	S-4-01	TC-11
20	.01	25194	TP421	S-4-01	TC-11
21	.01	25194	TP421	S-4-01	TC-11
22	.002	25185	TP405	S-6-002	TC-22
23	.1	25215	TP428	S-4-1	TC-1
24	.01	25194	TP421	S-4-01	TC-11
25	.05	25196	TP428	S-4-05	TC-15
26	.005	25196	TP428	S-4-05	TC-15
27	.05	25196	TP428	S-4-05	TC-15
28	200	25187	MC235	HO-5-31	1FM-31
29	500	25188	MC235	HO-5-325	1FM-31
30	100	25188	MC235	HO-5-31	1FM-31
31	100	25188	MC235	HO-5-31	1FM-31
32	4	25327	MC205	NO-5-55	KS-55
33	4000	25271	MC463	FM-5-24	1FM-24
34	100	25188	MC235	HO-5-31	1FM-31
35	100	25188	MC235	HO-5-31	1FM-31
36	4000	25273	MC456	FM-5-24	1FM-24
37	1500	25273	MC456	FM-5-24	1FM-24
38	30	25332	MC220	MS-43	MS-43
39	1500	25332	MC456	FM-5-215	1FM-215
40	4000	25271	MC463	FM-5-24	1FM-24
41	1500	25273	MC456	FM-5-215	1FM-215
42	1500	25273	MC456	FM-5-215	1FM-215
43	1500	25273	MC456	FM-5-215	1FM-215
44	47	25193	MC235	HO-5-31	1FM-31
45	1350	25213			
46	215	25213			
47	30	25332	MC220	MS-43	MS-43
48	30	25332	MC220	MS-43	MS-43
49	1500	25273	MC456	FM-5-215	1FM-215
50	1500	25273	MC456	FM-5-215	1FM-215
51	1500	25273	MC456	FM-5-215	1FM-215
52	60	25333			

*add series resistor to reduce plate voltage.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		AIR CHIEF PART No.	MALLORY PART No.	IRC PART No.	
55	100K	77214	BTS-100K	BTS-100K	Br.-Blk.-Yl. FM-RF Grid
56	100K	77262	BTS-1000	BTS-1000	Br.-Blk.-Red FM-RF Plate Decoupling
57	15K	77265	BTS-15K	BTS-15K	Br.-Grn.-Or. FM-RF Screen Dropping
58	22K	77266	BTS-22K	BTS-22K	Red-Red-Or. FM Oscillator Grid
59	10K	77212	BTS-10K	BTS-10K	Br.-Blk.-Or. FM Converter Screen Dropping
60	10K	77013	BT-2-10K	BT-2-10K	Br.-Blk.-Or. FM Converter Screen Dropping
61	100K	77262	BTS-100K	BTS-100K	Br.-Blk.-Red FM Converter Plate Decoupling
62	100K	77214	BTS-100K	BTS-100K	Br.-Blk.-Yl. AVC Network
63	1 Meg.	77218	BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grn. " "
64	4.7 Meg.	77272	BTS-4.7 Meg.	BTS-4.7 Meg.	Yl.-Vl.-Grn. " "
65	33K	77267	BTS-33K	BTS-33K	Or.-Or.-1st IF Screen Dropping
66	100K	77262	BTS-1000	BTS-1000	Br.-Blk.-Red 1st IF Screen Decoupling
67	4700K	77211	BTS-4700K	BTS-4700K	Yl.-Vl.-Red 1st IF Plate Decoupling
68	100K	77262	BTS-100K	BTS-100K	Br.-Blk.-Red " "
69	33K	77267	BTS-33K	BTS-33K	Or.-Or.-2nd IF Screen
70	100K	77262	BTS-1000	BTS-1000	Br.-Blk.-Red 2nd IF Decoupling
71	220K	77013	BT-2-220K	BT-2-220K	Red-Red-Yl. AM Converter Grid
72	10K	77216	BT-2-10K	BT-2-10K	Br.-Blk.-Or. AM Converter Screen Dropping
73	22K	77266	BTS-22K	BTS-22K	Red-Red-Or. AM Oscillator Grid
74	100K	77214	BTS-100K	BTS-100K	Br.-Blk.-Yl. AVC Network
75	1 Meg.	77218	BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
76	470K	77217	BTS-470K	BTS-470K	Yl.-Vl.-Yl. Diode Load
77	470K	77213	BTS-470K	BTS-470K	Yl.-Vl.-Or. Diode Filter
78	470K	77217	BTS-470K	BTS-470K	Yl.-Vl.-Yl. Diode Filter
79	220K	77216	BTS-220K	BTS-220K	Red-Red-Yl. Series Photo
80	22K	77266	BTS-22K	BTS-22K	Red-Red-Or. Tone Compensation-See Note
81	220K	77216	BTS-22K	BTS-22K	Red-Red-Or. Tone Compensation
82	22K	77266	BTS-22K	BTS-22K	Red-Red-Or. De-emphasis
83	47K	77213	BTS-47K	BTS-47K	Yl.-Vl.-Or. Tone Compensation
84	33K	77267	BTS-33K	BTS-33K	Or.-Or.-Ratio Detector Load
85	33K	77267	BTS-33K	BTS-33K	Or.-Or.-Ratio Detector Load
86	1 Meg.	77218	BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
87	10 Meg.	77217	BTS-10 Meg.	BTS-10 Meg.	Yl.-Vl.-Yl. AF Plate Load
88	470K	77214	BTS-470K	BTS-470K	Br.-Blk.-Blue AF Grid
89	470K	77217	BTS-470K	BTS-470K	Yl.-Vl.-Yl. AF Plate Load
90	10 Meg.	77274	BTS-10 Meg.	BTS-10 Meg.	Br.-Blk.-Blue Phase Inv. Plate Load
91	1 Meg.	77218	BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grn. Tone Compensation
92	220K	77216	BTS-220K	BTS-220K	Red-Red-Yl. Output Grid
93	220K	77216	BTS-220K	BTS-220K	Red-Red-Yl. " "
94	220K	77216	BTS-220K	BTS-220K	Red-Red-Yl. " "
95	270K	77189	5W-2-270	5W-2-270	Red-Vl.-Br. Output Cathode
96	270K	77243	AB-2500	AB-2500	Red-Vl.-Br. Output Cathode
97	100K	77304	BT-2-100K	BT-2-100K	Br.-Blk.-Red " "

Note-Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA	
	PRI.	SEC. 1	SEC. 2	AIR CHIEF PART No.	STANCOR PART No.
98	117V AC 560V CT 5.0V AC 6.2V AC @ .61A @ .078A @ 2.0A @ 3.6A			94204	P-6120*

THORPARDSON

MERIT

PART No.

PART No.

PART No.

PART No.

PART No.

PART No.

PART No.

PART No.

PART No.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	AIR CHIEF	THORDARN	
	PRI. SEC.	PRI. SEC.	PART No.	PART No.	
99A	1200Ω 3.9Ω CT	730Ω .6Ω CT	94229	T22566	Alternate transformer
B			94195		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	AIR CHIEF	JENSEN	
	PRI. SEC.	PRI. SEC.	PART No.	PART No.	
100	PM	3.9Ω	81126	ST-1017	Replace output transformer to match 6-8Ω voice coil
101	CONC DIA VC DIA	1" DIA	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT	

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	AIR CHIEF	MEISSNER
				PART No.	PART No.
102	Loop Ant.	60Ω	.7Ω	3863-5	
103	FM Ant.			11325	
104	Ant. Load.			38845	
105	FM Ant. Coil			38690	
106	FM RF Coil			38691	
107	BC Osc. Coil	1Ω	5.5Ω	38694	14-1040
108	FM Osc. Coil			38692	
109	Ant Input IF	10Ω	9Ω	38681	16-6658
110	FM 1st IF	.5Ω		38683	
111	AM Output IF	.5Ω		38682	16-6660
112	FM 2nd IF	.5Ω		38684	
113	FM Ratio Det	2Ω		38685	
114	Wave Trap			INF.	
115	RF Choke			38661	
116	"			38661	
117	"			38661	
118	"			38661	
119	"			38661	

#Tertiary Winding

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	AIR CHIEF	
					PART No.	
20-221	Bayonet	6-8	0.15	Brown	42186	Type 47
122			0.25	Blue	41285	Type 44

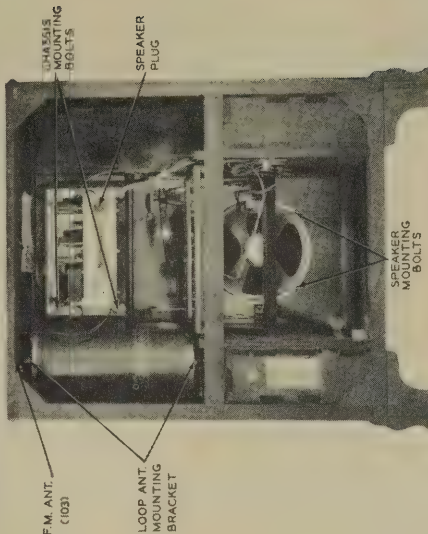
PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA		REMARKS
	AIR CHIEF	ASTATIC	
	PART No.	PART No.	
123	71231	L-71-A	

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	AIR CHIEF	NOTES
		PART No.	
124	Switch	90214	Band-Phono
125	"	80210	Record Comp. Socket & Switch
126	"	90118	Pushbutton Assy.
127	Tuning Cap.	26237	(13-465 MUF, 13-465 MUF) AM
A5	Trimmer		EC Ogc. Adj.
A7	Padder	26240	" " Adj.
	Trimmer	26231	A14, A16, A18
	Trimmer Strip	26175	Pushbutton
	Coil Strip	38405	
	Dial	31342	Glass
	Dial Pointer	11257	



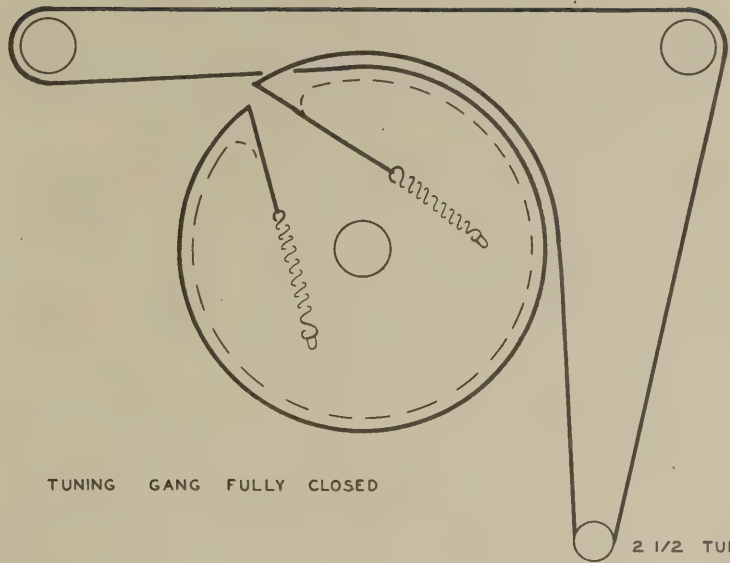
DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove fourteen wood screws holding panel on back of cabinet. Remove panel from cabinet.
3. Remove speaker plug from chassis.
4. Remove photo-motor plug from chassis.
5. Remove photo-motor plug from under record changer.
6. Remove plugs from loop antenna.
7. Remove two Phillips head screws holding phono compartment light in cabinet.
8. Remove FM antenna plug from chassis.
9. Remove four screws holding chassis in cabinet. Remove chassis from cabinet.
10. Remove four Phillips head screws holding loop antenna in cabinet. Remove loop from cabinet.
11. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.

PUSHBUTTON ADJUSTMENTS

Range of buttons reading from left to right is 550-1250KC, 600-1350KC, 650-1450KC 650-1450KC, 750-1600KC.
Make up a list of stations desired to be set up ranging from low to high frequency stations, making certain that each station falls within range of each button.

1. Turn receiver on an allow it to warm up for about 15 minutes.
2. Remove escutcheon plate in front of adjustments.
3. Push in dial button and manually tune in first station on list.
4. Push in 1st button on left and adjust B1 to tune in station. Switch back and forth from dial button to the button being adjusted to insure the button being set on the correct station.
5. Adjust B2 for maximum volume.
6. Set up the remaining buttons in the same manner adjusting B3, B5, B7 and B9 to tune in stations and B4, B6, B8 and B10 for maximum volume.



TUNING GANG FULLY CLOSED

DIAL CORD DRIVE



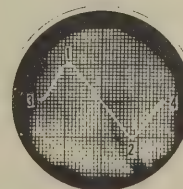
A



C



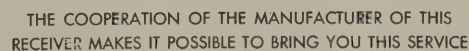
B



D

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4720-9



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- VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

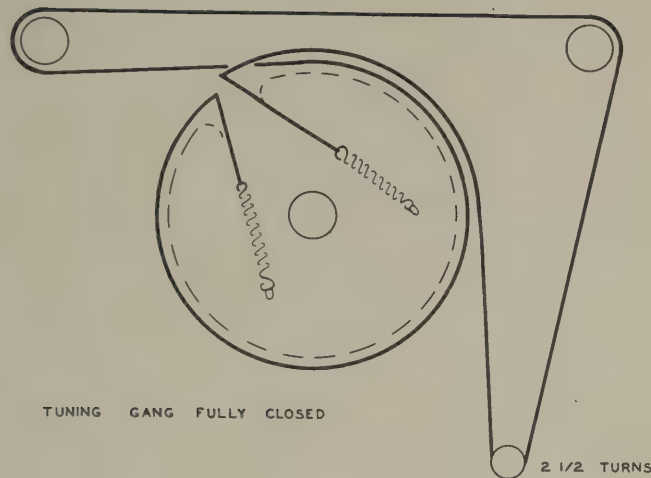
RESISTANCE READINGS

Item	Ticks	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6A05	1.3 Meg.	0Ω	.2Ω	0Ω	100KΩ	115KΩ	0Ω	-
2	68B7Y	0Ω	.2Ω	100KΩ	110KΩ	22KΩ	0Ω	0Ω	0Ω
3	68D7	0Ω	.2Ω	0Ω	1.2 Meg.	0Ω	135KΩ	0Ω	15KΩ
4	68A7	0Ω	0Ω	100KΩ	110KΩ	22KΩ	.5Ω	.1Ω	1.8 Meg.
5	68F7	0Ω	1.7 Meg.	0Ω	135KΩ	550KΩ	105KΩ	0Ω	.2Ω
6	6H6	0Ω	0Ω	30KΩ	INF.	INF.	INF.	.1Ω	30KΩ
7	68L70T	10 Meg.	570KΩ	0Ω	10 Meg.	570KΩ	0Ω	.1Ω	0Ω
8	68B6T	0Ω	0Ω	100KΩ	100KΩ	400KΩ	240KΩ	.1Ω	270Ω
9	68B6T	0Ω	0Ω	100KΩ	100KΩ	420KΩ	240KΩ	.1Ω	270Ω
10	68A7T	INF.	100KΩ	INF.	1Ω	INF.	120Ω	INF.	140KΩ

VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.
TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

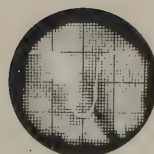
- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE



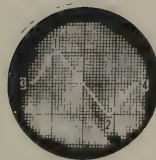
A



C



B



D

FIRESTONE (AIR CHIEF) MODEL
4-A-42 (Code 117-7-4A42) PAGE 9

FM ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

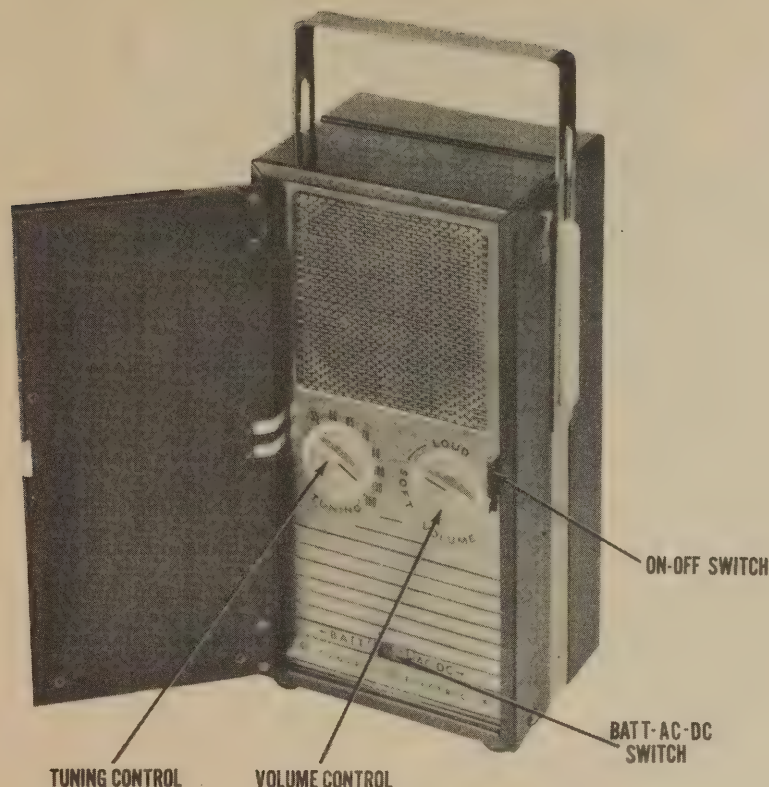
Use 60V synchronized sweep voltage from signal generator for horizontal deflection. The lead carrying this voltage should be shielded and of low total capacity.
The scope patterns to be strived for in alignment were obtained under ideal conditions. They should be duplicated as nearly as possible.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5 3300MFF	High side to Pin 2 (grid) of 6SF7. Low side to chassis.	10.7MC (freq. modulated 300KC sweep 60 modulation)	FM (fully counter-clockwise)	Tuning cap. fully open.	Connect vertical amplifier to Point A. Ground to chassis.	A8	Disconnect 4 MFD. capacitor from Point A. Remove 6SL7 Tube from socket. Set volume and tone control completely clockwise. Preset A9 by turning it out as far as possible. Adjust A8 for pattern of Figure A.
6 3300MFF	"	"	"	"	"	A9	Adjust for pattern of Figure B making certain that both sides of the curve are symmetrical.
7 3300MFF	High side to Pin 4 (grid) 6SG7. Low side to chassis.	"	"	"	"	A10, A11	Adjust for maximum amplitude and symmetry as in Figure A.
8 3300MFF	High side to Pin 8 (grid) 6SB7Y. Low side to chassis.	"	"	"	"	A12, A13	Adjust A12 for maximum amplitude and symmetry as in Figure A. Adjust A13 for pattern of Fig. C making both sides as symmetrical as possible.
9 3300MFF	"	"	"	"	Vertical amplifier to Point B. Low side to chassis.	A8, A9	Reconnect 4 MFD. capacitor to Point A. Pattern should be that of Figure D. If it is not, adjust A8 and A9 for maximum amplitude and straightness of pattern from "1" to "2" with a horizontal line from "3" to "4" crossing center of diagonal line. Replace 6SL7 tube in socket.
10 300Ω carbon res.	High side to ungrounded terminal of FM ant. socket. Low side to chassis.	107.9MC (freq. modulated 300KC sweep 400 modulation)	FM (fully counter-clockwise)	Channel 300	Across voice coil	A14	adjust for maximum output
11 "	"	87.9MC (freq. mod.)	"	Channel 200	"	A15	Adjust for maximum output. Repeat Steps 10 and 11 until no further improvement can be made.
12 "	"	105MC (freq. mod.)	"	Tune for maximum output. (Approx. Channel 245)	"	A16	Adjust for maximum output.
13 "	"	92MC (freq. mod.)	"	Tune for maximum output. (Approx. Channel 220)	"	A17	Adjust for maximum output. Repeat Steps 12 & 13 until no further improvement can be made.
14 "	"	105MC (freq. mod.)	"	Tune for maximum output. (Approx. Channel 285)	"	A18	Adjust for maximum output.
15 "	"	92MC (freq. mod.)	"	Tune for maximum output. (Approx. Channel 220)	"	A19	Adjust for maximum output. Repeat Steps 14 and 15 until no further improvement can be made.

FM ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5 .05 MFD	High side to Pin 4 (grid) 6SG7. Low side to chassis.	10.7MC (unmodulated)	FM	Tuning cap. fully open.	DC probe of VTVM to Point B. Common lead to chassis.	A8, A9	Preset A9 by turning it out as far as possible. Adjust A8 for maximum deflection (negative). Then adjust A9 for zero deflection. (as A9 is adjusted voltage will go up slowly then decrease rapidly. Adjust until voltage decreases to zero)
6 .05 MFD	"	"	"	"	DC probe of VTVM to point A. Common lead to chassis.	A10, A11	Preset A11 by turning it out as far as possible. Adjust A10 for maximum deflection. Then adjust A11 for maximum deflection.
7 .05 MFD	High side to Pin 8 (grid) of 6SB7Y. Low side to chassis.	"	"	"	"	A12, A13	Preset A13 by turning it out as far as possible. Adjust A12 for maximum deflection. Then adjust A13 for maximum deflection.
8 300Ω carbon res.	High side to ungrounded terminal of FM ant. socket. Low side to chassis.	87.5MC	"	Tuning cap. fully closed	"	A15	Adjust for maximum deflection.
9 "	"	108.5MC	"	Tuning cap. fully open.	"	A14	Adjust for maximum deflection. Repeat Steps 8 and 9 until no further improvement can be made.
10 "	"	92MC	"	Tune for maximum reading.	"	A17, A18	Adjust for maximum deflection.
11 "	"	105MC	"	Tune for maximum reading.	"	A16, A19	Adjust for maximum deflection. Repeat Steps 10 and 11 until no further improvement can be made.

FOR AM ALIGNMENT SEE FRONT PAGE OF THIS FOLDER.



GENERAL ELECTRIC MODEL 140

TRADE NAME	General Electric, Model 140
MANUFACTURER	General Electric Co., Appl. and Merch. Dept., Bridgeport, Conn.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	1R5 Converter, 1U4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output.
POWER SUPPLY	105-125 Volts AC-DC or 1.5 Volts "A" Supply and 67.5 Volts "B" Supply
RATING	.14 Amp. @ 117 Volts AC or 250MA @ 1.5 Volts DC and 8MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Due to the compactness of this receiver it will be necessary to use an insulated screwdriver blade with some form of flexible coupling when adjusting A1 & A3.
Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.05 MFD	High side to Pin 6 (grid) 1U4. Low side to chassis.	455KC	Tuning cap. fully closed	Across voice coil	A1, A2	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200MFD to reduce hum modulation.
2	.05 MFD	High side to rear stator of tuning cap. Low side to chassis.	"	"	"	A3, A4.	Adjust for maximum output. Repeat Steps 1 & 2.
3		Loop	1620KC	Tuning cap. fully open.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4	"	"	1500KC	Tune for maximum output.	"	A6	Adjust for maximum output.
5	"	"	580KC	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 3, 4 & 5 until no further improvement can be made.

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DATE 12/47 SET #30 FOLDER #4720-10

PARTS LIST AND DESCRIPTIONS

GENERAL ELECTRIC MODEL 140
BATTERY-LINE OPERATED

CHASSIS—TOP VIEW

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		GEN. ELECT. PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Converter	1R5	1R5	7AT	
2	1F Amp	1U4	1U4	6AR	
3	Det.-AVC-AF	1R5	1R5	6AU	
4	Power Output	3R4	3R4	7SA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

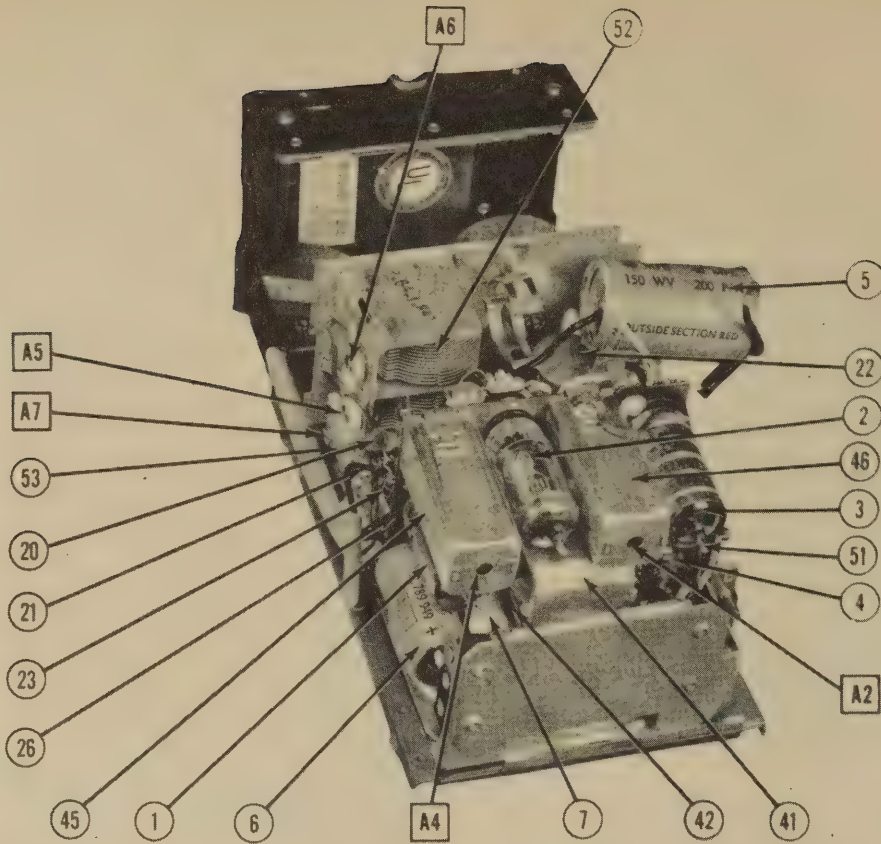
ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		GEN. ELECT. PART No.	MALLOY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
5A	40	RCE-051	TC248	M-2X40-150	UT-401	FRSA150-40-40	Filter
B	40	RCE-052	TC2501	M-100-12	UHC-112	PRS25-100	Filament Bypass
6	90	UCC-028	TP426	S-4-05	TC-15	434-05	Line Filter
7	.05	UCC-028					Output Plate Bypass
8	.005	RCC-076					ZS4D5
9	.01	RCC-076					Audio Coupling
10	.1	RCC-077					AF Plate Bypass
11	.1	RCC-077					AF Screen Bypass
12	.005	RCC-076					ZS4D5
13	.05	RCC-076					Audio Coupling
14	.1	RCC-077					AVC Filter
15	.1	RCC-077					Fil. Bypass
16	.1	RCC-077					Line Isolation
17	.1	RCC-077					Osc. Anode Decoupl.
18	330	UCU-536					Fil. Bypass
19	220	UCU-540					AF Plate Bypass
20	100	UCU-528					Diode RF Filter
21	10	RCM-020					Osc. Grid
53	430	UCG-543	MCB215	MOS 5-41	MS-41	1469-00001	Fixed Trimmer

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		GEN. ELECT. PART No.	MALLOY PART No.	IRC PART No.	
22	500KΩ	RRC-055			Volume Control

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		GEN. ELECT. PART No.	MALLOY PART No.	IRC PART No.	
23	100KΩ	RRH-097		BTS-100K	Br.-Blk.-Yl. Oscillator Grid
24	100KΩ	RRH-1049		BTS-1000	Br.-Blk.-Red. Filament String
25	2.2 Meg.	RRH-129		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
26	2.2 Meg.	RRH-129		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
27	2.2 Meg.	RRH-1048		BTS-1000	White-Br.-Br. Filament String
28	330KΩ	RRH-061		BTS-3300	Or.-Or.-Red. Decoupling
29	33KΩ	RRH-001		AB-1250	Or.-Or.-Blk. Rectifier Ballast
30	1200Ω	RRW-019		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
31	10 Meg.	RRH-145		BTS-3.9 Meg.	Or.-White-Grn. AF Screen Dropping
32	5.9 Meg.	RRH-135		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
33	1 Meg.	RRH-121		BTS-68K	Blue-Gray-Or. AF Plate Decoupling
34	68KΩ	RRH-093		BTS-3.3 Meg.	Or.-Or.-Grn. Output Grid
35	3.3 Meg.	RRH-133		BTS-22K	Vi.-Grn.-Br. Bias
36	750Ω	RRH-1046		URD-1146	Red-Red-Or.
37	22KΩ	RRH-081		BW-2-68	Blue-Gray-Blk. Filament String
38	68Ω	URD-1146		AB-1250	Filament Dropping
39	1320Ω	RRW-020			



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	GEN. ELECT. PART No.	THORDARN PART No.	
40	11000Ω	3.4Ω	720Ω	RT0-034	

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		GEN. ELECT. PART No.	JENSEN PART No.	
41	FIELD VC IMP. 3.4Ω			
42	CONC DIA. VC DIA. 1/2"	ROP-012		NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

R F COILS

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		GEN. ELECT. PART No.	MEISSNER PART No.	
43	Loop Ant.			Door Assembly with Loop.
44	Osc. Coil	3Ω	RAX-016	
45	Input IF	8Ω	RLC-054	
46	Output IF	19Ω	RTL-052	

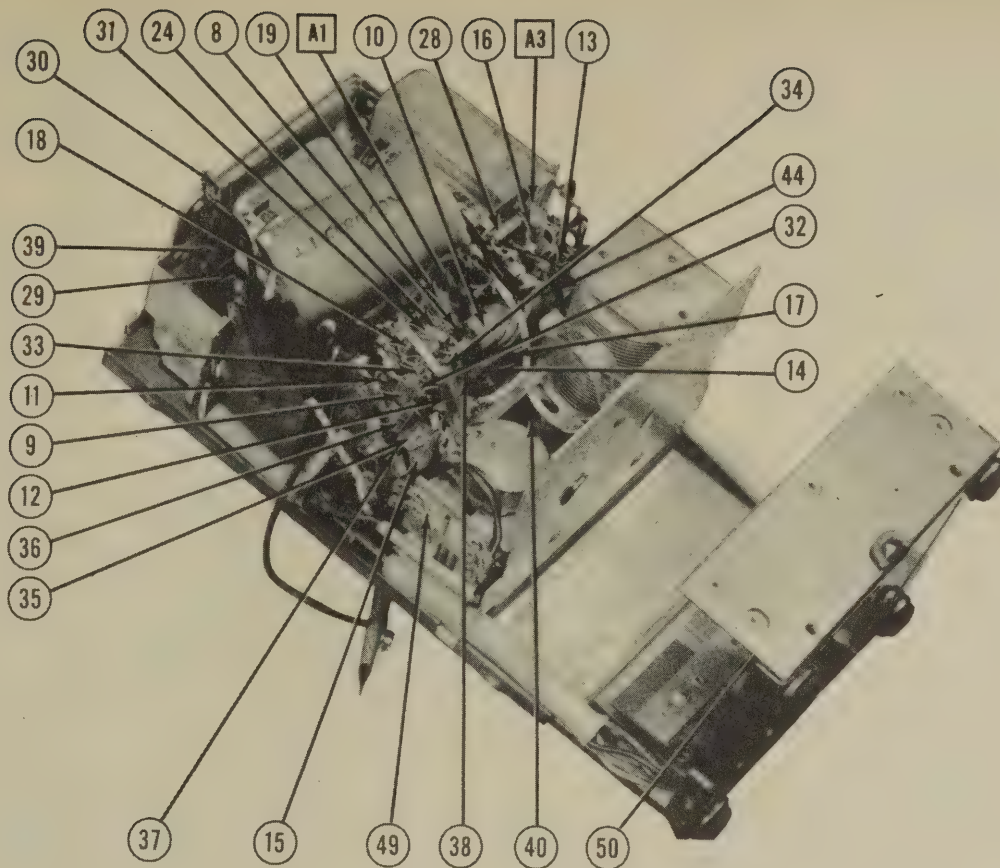
BATTERIES

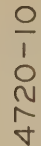
ITEM No.	VOLTAGE	GENERAL ELECTRIC PART No.	EVEREADY		INSTALLATION NOTES
			"A"	"B"	
47	1.5V "A"		#950		2 Used in Parallel
48	67.5V "B"			#467	

MISCELLANEOUS

ITEM No.	PART NAME	GEN. ELECT. PART No.	NOTES
49	On-Off Switch	RSM-035	AC-DC-Batt. Selenium (14-365 Mmf, 14-365 Mmf) Osc. Adj.
50	Switch	REX-034	
51	Rectifier	REX-004	
52	2 Gang Var. Cap	RCT-023	
A7	Padder	RCY-030	

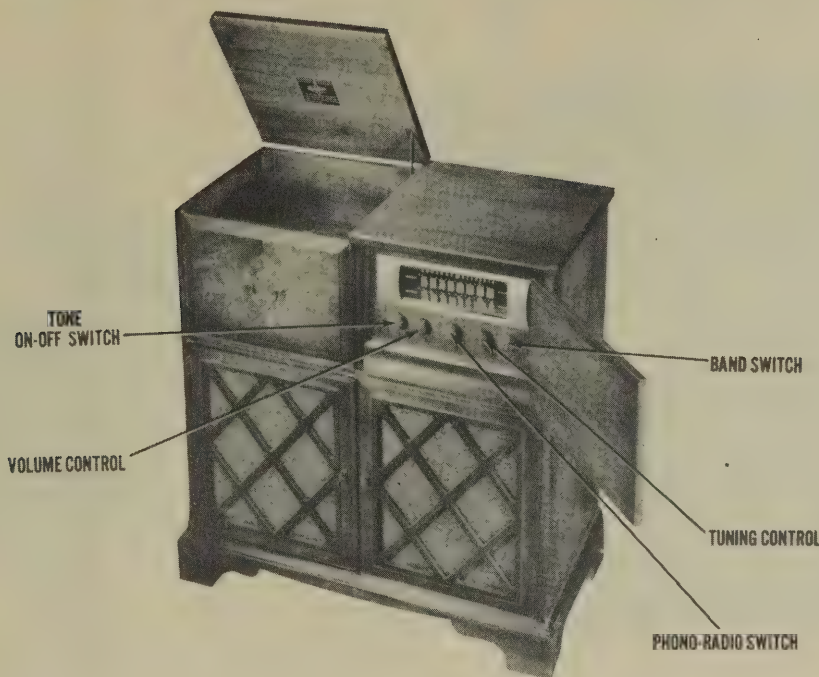
CHASSIS—BOTTOM VIEW





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- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC
- 2 - Voltages measured at 1000 ohms per volt.
- 3 - Socket connections are shown as bottom views.
- 4 - Measured values are from socket pin to common negative.
- 5 - Line voltage maintained at 117 volts for voltage readings.
- 6 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 7 - Volume control at maximum, no signal applied for voltage measurements.



TRADE NAME General Electric Models 326 & 327
MANUFACTURER General Electric Co., Appl. & Merch. Dept., Bridgeport, Conn.
TYPE SET AC Operated Radio-Phono Combination Superheterodyne Receiver with Loop Antenna
TUBES (SEVEN) Types, 6SG7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-Audio Amp., 6SC7 Phono Pre. Amp., 6V6GT Power Output, 5Y3GT Rectifier.

POWER SUPPLY 105-125 Volts AC
TUNING RANGE—BROADCAST 540-1600KC
RATING .520 Amps. @ 117V AC
SHORT WAVE 5.5 - 18MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Make all RF adjustments with receiver completely assembled in cabinet. After receiver is installed in the cabinet, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial before performing Step 3.
 Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .05 MFD.	High side to Pin 4 (grid) 6SK7. Low side to chassis.	455KC	BC (counter-clock-wise)	Tuning cap. fully closed.	Across voice coil	A1,A2	Adjust for maximum output.
2 .05 MFD.	High side to Pin 8 (grid) 6SA7. Low side to chassis.	"	"	"	"	A3,A4	Adjust for maximum output. Install receiver in cabinet. Connect loop antennas.
3	Loop	1500KC	"	Tune for maximum output.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Rock tuning cap. and adjust for maximum output.
4	"	580KC	"	"	"	A6	Rock tuning cap. and adjust for maximum output. Repeat Steps 3 & 4 until no further improvement can be made.
5	"	18MC	SW (clock-wise)	18MC	"	A7	Adjust for maximum output. Tune sig. gen. to 18.9MC. If signal is not heard retune sig. gen. to 18MC and loosen trimmer to next peak. Adjust for maximum output and re-check for image.
6	"	"	"	Tune for maximum output.	"	A8	Rock tuning control and adjust for maximum output.

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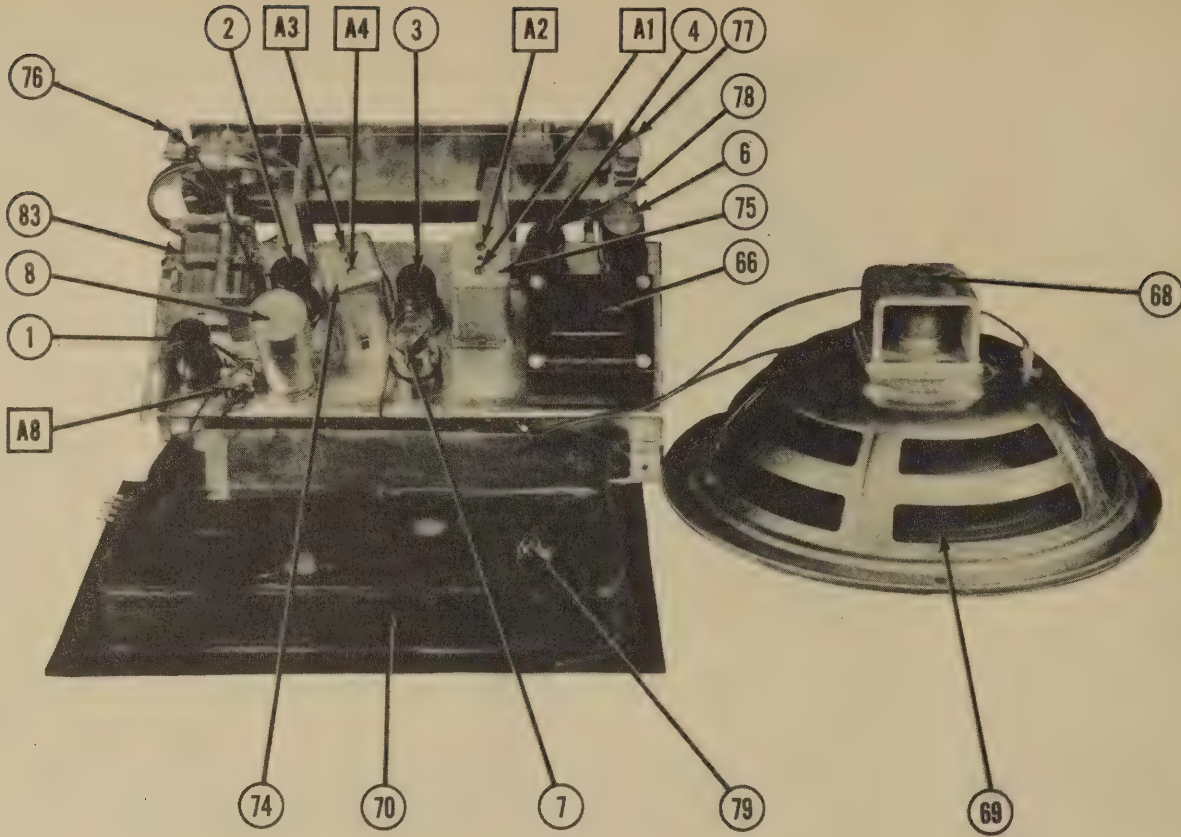
DATE 12/47 SET #30 FOLDER #4720-11

GENERAL ELECTRIC
MODELS 326, 327

GENERAL ELECTRIC
MODELS 326, 327

PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	USE	REPLACEMENT DATA				INSTALLATION NOTES
		GEN. ELECT. PART No.	STANDARD REPLACEMENT	RMA BASE TYPE		
1	RF Amp.	6SG7	6SG7	8BK		
2	Converter	6SA7	6SA7	8R		
3	IF Amp.	6SK7	6SK7	9N		
4	Det.-Audio Amp.	6SQ7	6SQ7	8Q		
5	Phono Pre. Amp.	6SC7	6SC7	8S		
6	Power Output	6V6GT	6V6GT	7AC		
7	Rectifier	5Y3GT	5Y3GT	5T		

ITEM No.	RATING	CAP.	VOLT	REPLACEMENT DATA			IDENTIFICATION CODES
				GENERAL ELECTRIC PART No.	MALLORY PART No.	SOLAR PART No.	
8A	30	350		FP429	DY-403	EL-424	UP43145C
B	30	350					
C	15	250					
D	20	25					
9A	15	250					
B	15	250					
10	.05	600	UCC-045	FP225	DY-2X15-350	EL-253	UPI5D35
11	.02	600	UCC-041	TP415	S-6-05	TC-15	D76S5
12	.01	600	UCC-045	TP415	S-6-05	TC-12	D76S2
13	.01	600	UCC-040	TP410	S-6-01	TC-15	D76S5
14	.003	600	UCC-037	TP406	S-6-003	TC-23	D76D3
15	.02	600	UCC-041	TP412	S-6-02	TC-12	D76S1
16	.01	600	UCC-040	TP410	S-6-01	TC-11	D76S1
17	.007	600	RCC-001	TP445	S-6-006	TC-26	D76D6
18	.001	600	RCC-035	TP404	S-6-001	TC-21	D76D1
19	.001	600	RCC-035	TP404	S-6-001	TC-21	D76D1
20	.005	600	UCC-039	TP408	S-6-005	TC-25	D76D5
21	.01	600	UCC-040	TP410	S-6-01	TC-11	D76S1
22	.01	600	UCC-040	TP410	S-6-01	TC-11	D76S1
23	.01	600	UCC-040	TP410	S-6-01	TC-11	D76S1
24	.01	600	UCC-040	TP410	S-6-01	TC-11	D76S1
25	.05	600	UCC-045	TP415	S-6-05	TC-15	D76S5
26	470	500	RCC-064	MP245	M0.5-35	1PM-35	5M5T5
27	100	500	RCC-112	M235	M0.5-31	1PM-31	5M5T1
28	3900						
29	47	500	RCC-119	M225	M0.5-45	1PM-45	5M5Q5
30	100	500	RCC-112	M235	M0.5-31	1PM-31	5M5T1

Note 1 - Some sets may use Part Number RCE-003.

CONTROLS

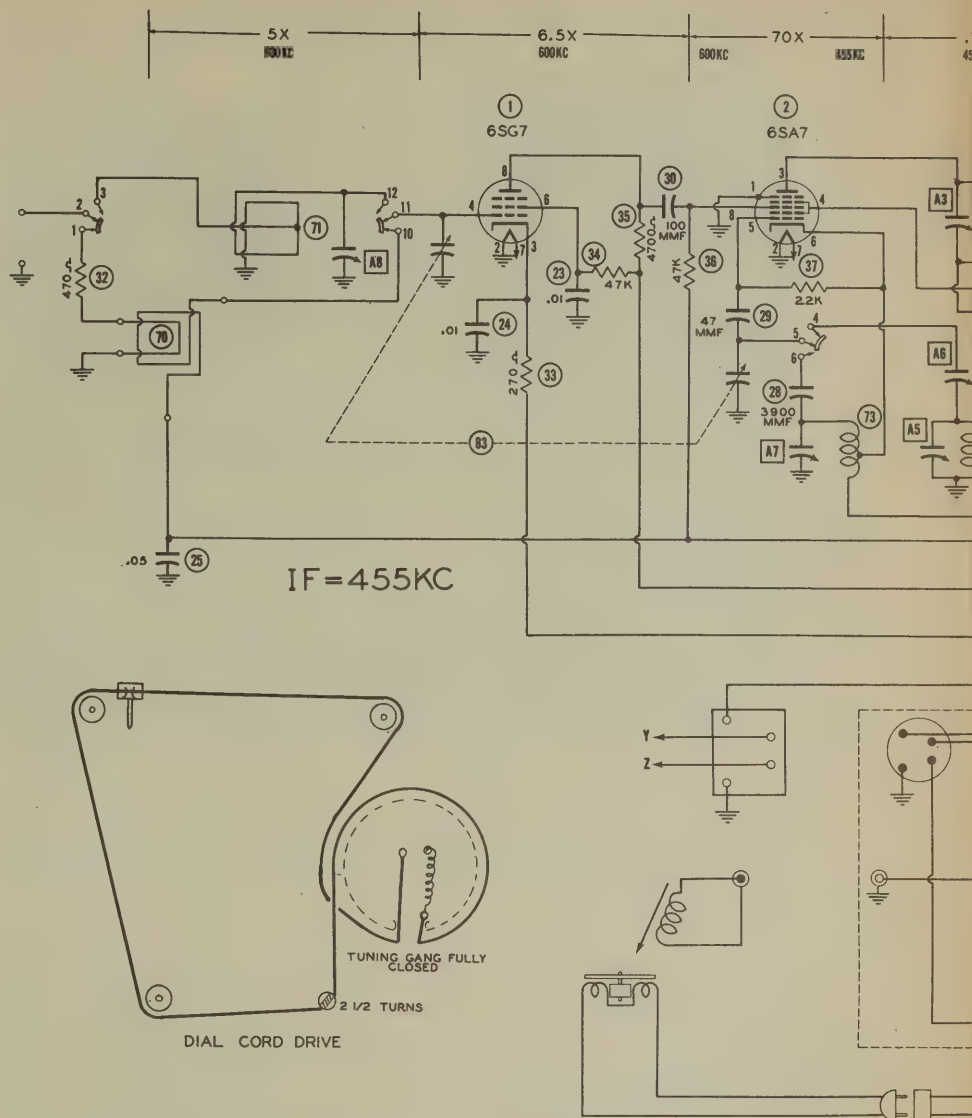
ITEM No.	RATING	RESISTANCE	WATTS	GEN. ELECT. PART No.	REPLACEMENT DATA			INSTALLATION NOTES
					MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
31A	2 Meg. Shaft			RRC-005	TM251	D18-139X	AT-116	Volume Control tapped @ 1 Meg. Attach to 31A per instructions
B				Not Req.	SS25	E	KSS-3	

RESISTORS

ITEM No.	RATING	RESISTANCE	WATTS	GEN. ELECT. PART No.	REPLACEMENT DATA			IDENTIFICATION CODES
					MALLORY PART No.	IRC PART No.	IRC PART No.	
32	470K			URD-041			BTS-470	Y1-V1-Br. Antenna Loading
33	270K			URD-035			BW-2-270	Red-V1-Br. RF Cathode
34	470K			URD-089			BTS-470K	Y1-V1-Or. RF Screen Dropping
35	470K			URD-085			BTS-4700	Y1-V1-Red RF Plate Load
36	47K			URD-089			BTS-47K	Y1-V1-Or. Converter Grid
37	22K			URD-081			BTS-22K	Red-Red-Or. Oscillator Grid
38	470K			URD-041			BTS-470	Y1-V1-Br. Converter Screen Decoupling
39	470K			URD-113			BW-2-150	Br.-Grn.-Br. IF Cathode
40	150K			URD-029			BW-2-150	Br.-Blk.-Red IF Plate Dropping
41	100K			URD-049			BTS-1000	Br.-Blk.-Or. Screen Dropping
42	10K			URF-073			BTS-2-10K	Red-Red-Grn. AVC Network
43	2.2 Meg.			URD-129			BTS-2.2 Meg.	Red-Red-V1. Diode Load
44	220K			URD-105			BTS-220K	

CHASSIS—BOTTOM VIEW

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	GENERAL ELECTRIC	PART No.	
45	100K Ω	W	URD-097	BTS-100K	Br.-Blk.-Yl. Tone Compensation
46	100K Ω	W	URD-097	BTS-100K	Br.-Blk.-Yl. "
47	100K Ω	W	URD-025	EW-100	Br.-Blk.-Br. Feedback
48	10 Meg.	W	URD-145	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
49	470K Ω	W	URD-113	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
50	470K Ω	W	URD-113	BTS-470K	Yl.-Vi.-Yl. AF Output Grid
51	1000 Ω	W	URD-049	BTS-1000	Br.-Blk.-Red Tone Compensation



THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
1	6S97	OV.	OV.	1.8VDC	-7VDC	1.8VDC	140VDC
2	6SA7	OV.	OV.	213VDC	97VDC	-11VDC	OV.
3	6SK7	OV.	OV.	1.7VDC	-7VDC	1.7VDC	100VDC
4	6B97	OV.	-5VDC	OV.	-5VDC	-5VDC	75VDC
5	6SC7	OV.	75VDC	-4VDC	-4VDC	60VDC	OV.
6	6V6GT	OV.	6.3VAC	250VDC	210VDC	OV.	250VDC
7	5Y3GT	OV.	265VDC	265VDC	280VAC	OV.	260VAC

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The stage gain measured values listed above are approximate average operative stage, rather than an absolute value. It should be in mind that it is possible to introduce so many variables into ment operation, such as, type of equipment used for measurement, and placement of probes, the accuracy of alignment, etc., that the reading is impractical. AVC is made inoperative and 3-volt substituted for measurement.

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		GEN. ELECT. PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SG7	6SG7	8BK	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	9N	
4	Det.-Audio Amp.	6SQ7	6SQ7	8Q	
5	Phono Pre. Amp.	6SC7	6SC7	8S	
6	Power Output	6V6GT	6V6GT	7AC	
7	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		GENERAL ELECTRIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
8A	30 CAP.		FP429	DY-403	EL-424	UP43145G
B	30					
C	350					
D	20					
9A	15					
B	250					
10	.05					
11	.02					
12	.05					
13	.01					
14	.003					
15	.02					
16	.01					
17	.007					
18	.001					
19	.001					
20	.005					
21	.01					
22	.01					
23	.01					
24	.01					
25	.05					
26	.470					
27	100					
28	3500					
29	47					
30	100					

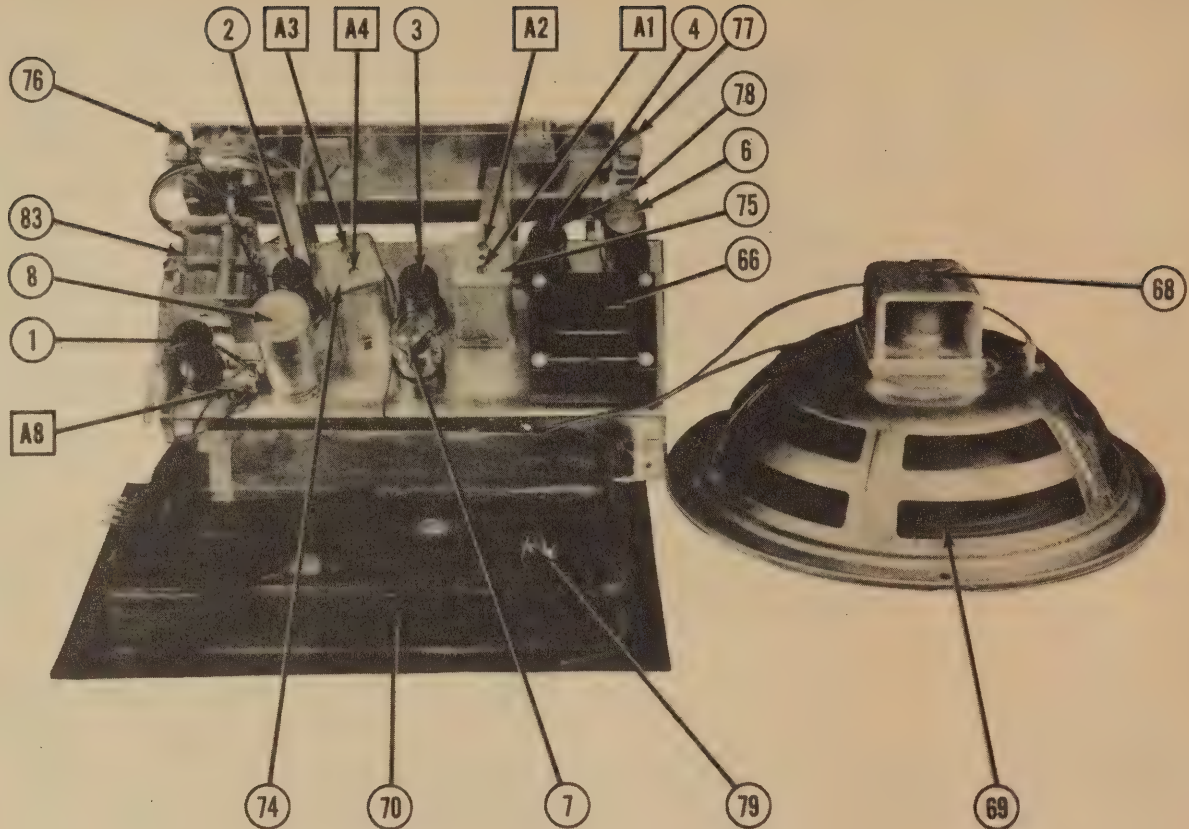
Note 1 - Some sets may use Part Number RCE-003.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		GEN. ELECT. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
31A	2 Meg. Shaft	RRC-005	TP251	D18-139X	AT-116	Volume Control tapped @ 1 Meg. Attach to 31A per instructions
B		Not Req.	S825	E	KSS-3	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		RESISTANCE	WATTS	GEN. ELECT. PART No.	IRC PART No.	
32	470Ω			URD-041	BTS-470	V1.-V1.-Br. Antenna Loading
33	270Ω			URD-035	BW-4-270	Red-V1.-Br. RF Cathode
34	47KΩ			URD-089	BTS-47K	V1.-V1.-Or. RF Screen Dropping
35	4700Ω			URD-065	BTS-4700	V1.-V1.-Red RF Plate Load
36	47KΩ			URD-089	BTS-47K	V1.-V1.-Or. Converter Grid
37	22KΩ			URD-081	BTS-22K	Red-Red-Or. Oscillator Grid
38	470Ω			URD-041	BTS-470	V1.-V1.-Br. Converter Screen Decoupling
39	470KΩ			URD-113	BTS-470K	V1.-V1.-Br. 1st IF Transformer Shunt
40	150Ω			URD-029	BW-4-150	Br.-Grn.-Br. IF Cathode
41	1000Ω			URD-049	BTS-1000	Br.-Blk.-Red IF Plate Decoupling
42	10KΩ			URF-073	BT-2-10K	Br.-Blk.-Or. Screen Dropping
43	2.2 Meg.			URD-129	BTS-2.2 Meg	Red-Red-Grn. AVC Network
44	220KΩ			URD-105	BTS-220K	Red-Red-V1. Diode Load



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	GENERAL ELECTRIC PART No.	IRC PART No.	
45	100K Ω	1/2	URD-097	BTS-100K	Br.-Blk.-Yl. Tone Compensation
46	100K Ω	1/2	URD-097	BTS-100K	Br.-Blk.-Yl.
47	100 Ω	1/2	URD-025	BW-100	Br.-Blk.-Br. Feedback
48	10 Meg.	1/2	URD-145	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
49	470K Ω	1/2	URD-113	BTS-470K	Yl.-Yl.-Yl. AF Plate Load
50	470K Ω	1/2	URD-113	BTS-470K	Yl.-Yl.-Yl. AF Output Grid
51	1000 Ω	1/2	URD-049	BTS-1000	Br.-Blk.-Red Tone Compensation
52	330 Ω	1/2	URD-037	BW-330	Or.-Or.-Br. Output Cathode
53	5600 Ω	1/2	URD-067	BTS-5600	Grn.-Blue-Red Tone Compensation
54	1500 Ω	1/2	URD-053	BTS-1500	Br.-Grn.-Red Feedback
55	6800 Ω	1/2	URD-077	BTS-6800	Blue-Gray-Red Phono Shunt
56	3.3 Meg.	1/2	URD-133	BTS-3.3 Meg.	Or.-Or.-Grn. 1st Phono Amp. Grid
57	3.3 Meg.	1/2	URD-133	BTS-3.3 Meg.	Or.-Or.-Grn. 2nd Phono Amp. Grid
58	68K Ω	1/2	URD-093	BTS-68K	Blue-Gray-Or. 1st Phono Amp. Plate Load
59	68K Ω	1/2	URD-093	BTS-68K	Blue-Gray-Or. 1st Phono Amp. Plate Decoupling
60	33K Ω	1/2	URD-085	BTS-33K	Or.-Or.-Or. 2nd Phono Amp. Plate Load
61	33K Ω	1/2	URD-085	BTS-33K	Or.-Or.-Or. 2nd Phono Amp. Plate Decoupling
62	200K Ω	1/2	URD-104	BTS-200K	Red-Blk.-Yl. Audio Coupling
63	27K Ω	1/2	URD-083	BTS-27K	Red-Vl.-Or. Tone Compensation
64	180K Ω	1/2	URF-055	BTS-180K	Br.-Gray-Yl.
65	1800 Ω	1/2	URF-055	BT-2-1800	Br.-Gray-Red Filter

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	GENERAL ELECTRIC PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
66	117V AC 520V CT @ .52A	4.9V AC @ .066A	4.9V AC @ 2.0A	6.3V AC @ 2.9A	RTP-010			
				6.4V CT @ .3A				

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	PRI.	SEC.	DC RES.	GENERAL ELECTRIC PART No.	STANCOR PART No.	THORDARSON PART No.	
67	4750 Ω	4.3 Ω	385 Ω	.63 Ω	RTO-004	A-3877	T22S46	A-2930

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	GEN. ELECT. PART No.	JENSEN PART No.	
68	PM	4.3 Ω	UOP-1206	ST-1021 Mod. P12-S	†Replace output transformer to match 6-8 Ω voice coil
69	CONE DIA. 12"	VC DIA. 1"	UOX-005		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	GEN. ELECT. PART No.	MEISSNER PART No.
70	Loop Ant.	.12	1.5 Ω	RLL-006	
71	SW Loop Ant.		.02	RLL-005	14-1040
72	BC Osc. Coil		4.3 Ω	RLC-004	14-1046
73	SW Osc. Coil		.12	RLC-005	16-6658
74	Input IF	16 Ω	17 Ω	RTL-005	16-6870
75	Output IF	17 Ω		RTL-006	

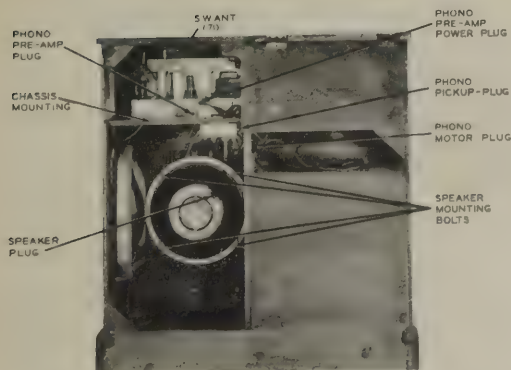
PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GEN. ELECT. PART No.	UD1-005	
76-79	Bayonet	6-8	0.25	Blue			Type 44

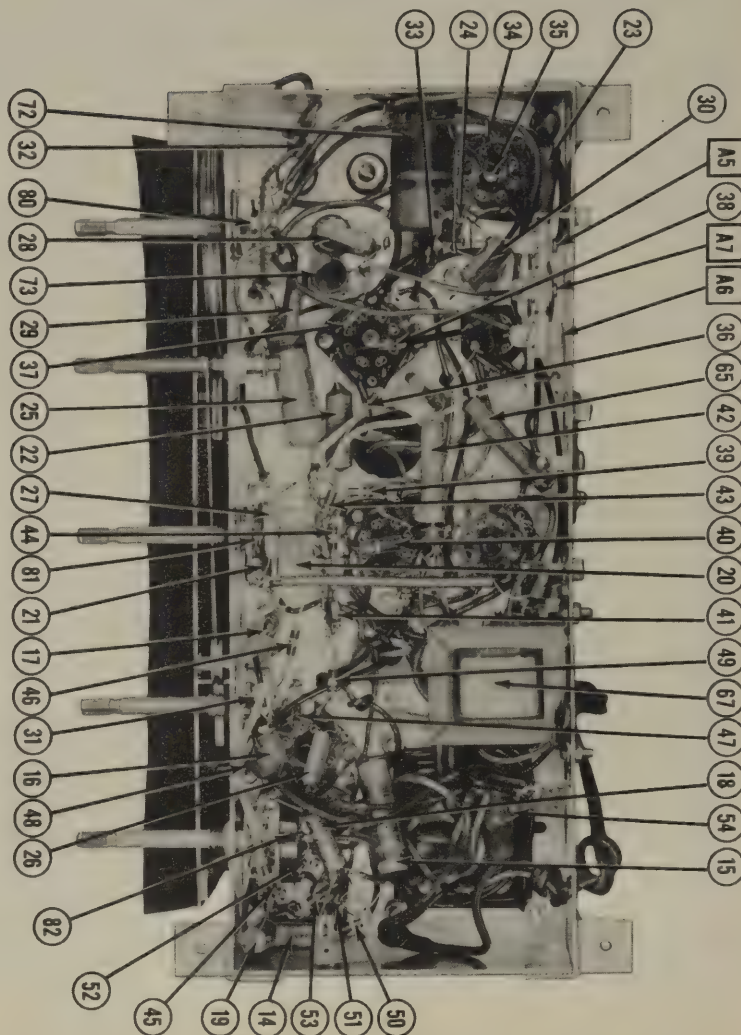
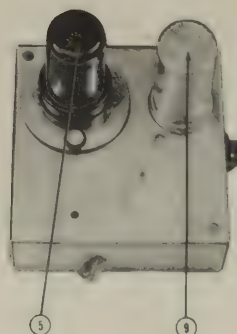
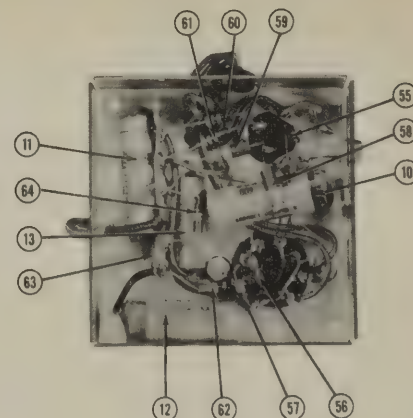
MISCELLANEOUS

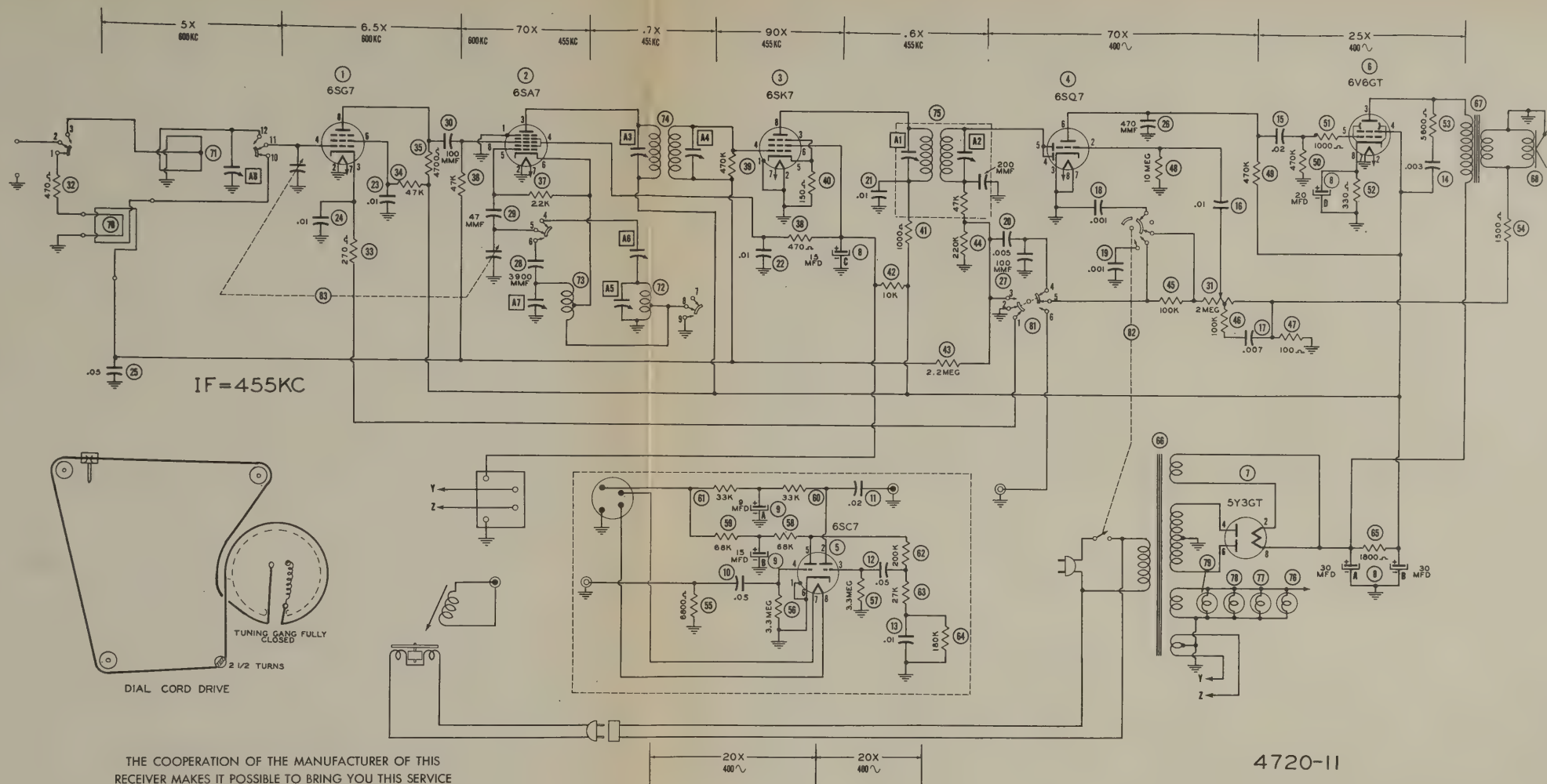
ITEM No.	PART NAME	GEN. ELECT. PART No.	NOTES
80	Band Switch	RSW-007	
81	Switch	RSW-006	
82	2 Gang Var.Cap.	RSX-003	Radio-Phono
83	Pointer	RDT-005	Tone-Power (13-512MF, 13-512MF)
	Dial Scale	RDS-016	Dial



DISASSEMBLY INSTRUCTIONS

1. Remove five push-on type control knobs.
2. Remove power plug from phono pre-amp. chassis to tuning chassis.
3. Remove phono pickup plug from pre-amp. chassis.
4. Remove speaker plug from speaker.
5. Disconnect phono-motor plug.
6. Remove pre-amp. coupling plug from tuning chassis.
7. Remove three plugs from short wave antenna.
8. Remove pilot light from bracket on cabinet.
9. Remove tacks holding cover over loop antenna. Remove four leads from loop antenna.
10. Remove four wood screws holding loop antenna in cabinet. Remove loop from cabinet.
11. Remove four hex nuts holding speaker in cabinet. Remove speaker.
12. Remove two hex nuts holding pre-amp. chassis in cabinet. Remove pre-amp. chassis.
13. Remove four screws holding tuning chassis in cabinet. Remove chassis from cabinet.





THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

VOLTAGE AND RESISTANCE READINGS TAKEN WITH RADIO-PHONO SWITCH IN RADIO POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	OV.	OV.	1.6VDC	-.7VDC	1.6VDC	140VDC	6.5VAC	192VDC
2	6SA7	OV.	OV.	213VDC	97VDC	-11VDC	OV.	6.5VAC	-.6VDC
3	6SK7	OV.	OV.	1.7VDC	-.7VDC	1.7VDC	100VDC	6.5VAC	205VDC
4	6SQ7	OV.	-.5VDC	OV.	-.5VDC	-.5VDC	75VDC	6.5VAC	OV.
5	6V6GT	OV.	75VDC	-.4VDC	-.4VDC	60VDC	OV.	3.2VAC	3.2VAC
6	6V6GT	OV.	6.5VAC	250VDC	210VDC	OV.	250VDC	OV.	11VDC
7	5Y3GT	OV.	265VDC	265VDC	260VAC	OV.	260VAC	OV.	265VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	OV.	OV.	300Ω	2.7 Meg.	300Ω	130KΩ	.1Ω	85KΩ
2	6SA7	OV.	OV.	80KΩ	90KΩ	22KΩ	.5Ω	.1Ω	2.7 Meg.
3	6SK7	OV.	OV.	150Ω	2.7 Meg.	150Ω	90KΩ	.1Ω	90KΩ
4	6SQ7	OV.	10 Meg.	OV.	280KΩ	280KΩ	550KΩ	.1Ω	OV.
5	6V6GT	OV.	150KΩ	4 Meg.	4 Meg.	220KΩ	OV.	.1Ω	.1Ω
6	6V6GT	OV.	.1Ω	80KΩ	80KΩ	440KΩ	85KΩ	OV.	330Ω
7	5Y3GT	OV.	80KΩ	80KΩ	160Ω	1N.P.	150Ω	1N.P.	80KΩ

TAKEN WITH VACUUM TUBE VOLTMETER.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

TRADE NAME Hallicrafters, Model CA-2, CA-2A
MANUFACTURER The Hallicrafters Co., 2611 S. Indiana Ave., Chicago 16, Ill.
TYPE SET Battery Operated Crystal Controlled Transmitter and Superheterodyne Receiver
TUBES (SEVEN) Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 6V6GT Power Output, 6J5 Oscillator, 6V6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY 12 Volt Storage Battery
RATING 2.8 Amp. @ 12V DC (Receiver) 4.5 Amp. @ 12V DC (Transmitter)
TUNING RANGE—BROADCAST 540-1610KC **LONG WAVE** 195-410KC **XMTR FREQ.** 3105KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Antenna dummy load consists of 100 MMFD capacitor in series with high side of signal generator with a 51 MMFD capacitor from antenna socket to chassis.

Loop antenna dummy consists of 20 micro henry coil bypassed by a 150 MMF. capacitor. Connect from loop socket to chassis.

In Step 17 A19 should be adjusted with 500 micro volt input. 1020 CPS should be down approximately 18DB from 400 CPS level.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to Ant. Jack. Low side to chassis.	455KC	BC Ant. (1st position clock-wise)	1000KC	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output in order given. Then repeat.
2 Antenna Dummy (See pre-alignment notes.)	"	600KC	"	600KC	"	A5	Adjust for maximum output
3 "	"	1400KC	"	1400KC	"	A6	Adjust for maximum output. Repeat Steps 2 & 3 until no further improvement can be made.
4 "	"	600KC	"	600KC	"	A7	Adjust for maximum output.
5 "	"	1400KC	"	1400KC	"	A8	"
6 "	"	2110KC	"	1200KC	"	"	Twist or untwist gimmick for minimum image.
7 "	"	220KC	Beacon Antenna (4th position clock-wise)	220KC	"	A9	Adjust for maximum output
8 "	"	380KC	"	380KC	"	A10	Adjust for maximum output. Repeat Steps 7 & 8 until no further improvement can be made.
9 "	"	220KC	"	220KC	"	A11	Adjust for maximum output
10 "	"	380KC	"	380KC	"	A12	"
11 "	"	1260KC	"	350KC	"	"	Twist or untwist gimmick for minimum image signal.
12 "	"	278KC	Tower (2nd position)	"	"	A13 A14	Adjust for maximum output in order given and repeat.
13 Loop Dummy (See pre-alignment notes)	High side to loop jack. Low side to chassis.	600KC	BC Loop (fully counter-clockwise)	600KC	"	A15	Adjust for maximum output
14 "	"	1400KC	"	1400KC	"	A16	Adjust for maximum output. Repeat Steps 13 & 14 until no further improvement can be made.
15 "	"	220KC	Beacon Loop (3rd position clockwise)	220KC	"	A17	Adjust for maximum output
16 "	"	380KC	"	380KC	"	A18	Adjust for maximum output. Repeat Steps 15 & 16 until no further improvement can be made.
17 "	"	300KC	"	300KC	"	A19	Connect audio oscillator to ext. modulation terminals of RF sig. gen. Set audio oscillator at 1020 CPS with 30% modulation. Adjust A19 for minimum output.

After transceiver has been installed in plane connect 0-1 RF ammeter in series with Ant. and Ant. load coil. Adjust inductance of load coil for maximum current. (Approximately .7 Amp.) Whistling or talking into mike should cause an increase of approximately 20% in antenna current.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."

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DATE 12/47 SET #30 FOLDER #4720-12

HALLICRAFTERS MODELS
CA-2, CA-2A

HALLICRAFTERS MODELS
CA-2, CA-2A

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		HALLICRAFTERS PART No.	STANDARD REPLACEMENT		
1	Converter	12BE6	12BE6	7CH	AF Amp. on Transmitter Modulator on Transmitter
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	6V6GT	6V6GT	7AC	
5	Oscillator	6J5	6J5	6Q	
6	Power Amp.	6V6GT	6V6GT	7AC	
7	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

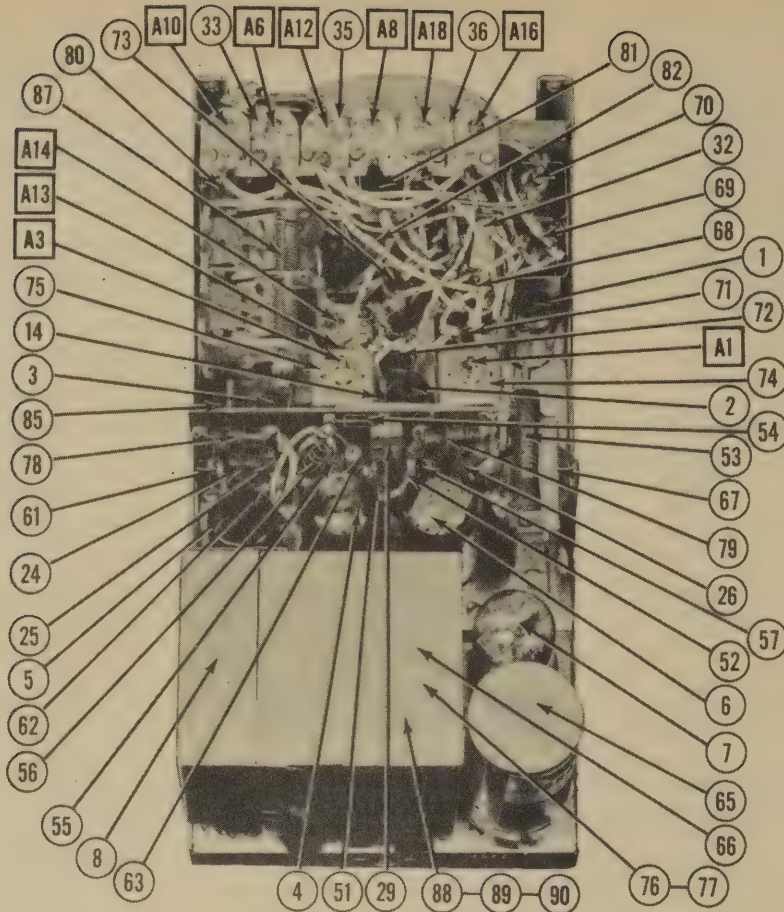
ITEM No.	RATING		HALLICRAFTERS PART No.	MALLORY PART No.	REPLACEMENT DATA		CORNELL-COBIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT			SOLAR PART No.	SPRAGUE PART No.		
8A	8	450	45C104	TP426	M-2x8-450	TC-15	BRL8845	Filter - Red
8B	8	450						
9	20	150						
10	20	150						
11A	.02	150						
11B	.02	600						
12	.01	150						
13	.01	150						
14	.002	600						
15	.001	200						
16	.25	200	M-500-15	TP430	TTR-1.5-25	TC-2	BRL2215	Cathode Bypass-Yellow
17	.0001	600						
18	.0005	600						
19	.1	150						
20	.1	150						
21	.01	150						
22	.01	150						
23	.01	150						
24	.01	150						
25	.47	500	M-5-31					
26	100	500						
27	220	500						
28	5	500						
29	5	500						
30	150	500						
31	150	500						
32	270	500						
33	120	500						
34	150	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Diode RF Filter
35	75	500						
36	75	500						
37	25	500						
38	25	500						
39	25	500						
40	25	500						
41	25	500						
42	25	500						
43	25	500	M-5-31					
44	25	500						
45	25	500						
46	25	500						
47	25	500						
48	25	500						
49	25	500						
50	25	500						
51	25	500						
52	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Sens. Control Bypass
53	25	500						
54	25	500						
55	25	500						
56	25	500						
57	25	500						
58	25	500						
59	25	500						
60	25	500						
61	25	500	M-5-31					
62	25	500						
63	25	500						
64	25	500						
65	25	500						
66	25	500						
67	25	500						
68	25	500						
69	25	500						
70	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Conv. Cathode Bypass
71	25	500						
72	25	500						
73	25	500						
74	25	500						
75	25	500						
76	25	500						
77	25	500						
78	25	500						
79	25	500						
80	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Osc. Grid
81	25	500						
82	25	500						
83	25	500						
84	25	500						
85	25	500						
86	25	500						
87	25	500						
88	25	500						
89	25	500						
90	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	RF Coupling
91	25	500						
92	25	500						
93	25	500						
94	25	500						
95	25	500						
96	25	500						
97	25	500						
98	25	500						
99	25	500						
100	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Neon Ind. Coupling
101	25	500						
102	25	500						
103	25	500						
104	25	500						
105	25	500						
106	25	500						
107	25	500						
108	25	500						
109	25	500						
110	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
111	25	500						
112	25	500						
113	25	500						
114	25	500						
115	25	500						
116	25	500						
117	25	500						
118	25	500						
119	25	500						
120	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
121	25	500						
122	25	500						
123	25	500						
124	25	500						
125	25	500						
126	25	500						
127	25	500						
128	25	500						
129	25	500						
130	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
131	25	500						
132	25	500						
133	25	500						
134	25	500						
135	25	500						
136	25	500						
137	25	500						
138	25	500						
139	25	500						
140	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
141	25	500						
142	25	500						
143	25	500						
144	25	500						
145	25	500						
146	25	500						
147	25	500						
148	25	500						
149	25	500						
150	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
151	25	500						
152	25	500						
153	25	500						
154	25	500						
155	25	500						
156	25	500						
157	25	500						
158	25	500						
159	25	500						
160	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
161	25	500						
162	25	500						
163	25	500						
164	25	500						
165	25	500						
166	25	500						
167	25	500						
168	25	500						
169	25	500						
170	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
171	25	500						
172	25	500						
173	25	500						
174	25	500						
175	25	500						
176	25	500						
177	25	500						
178	25	500						
179	25	500						
180	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
181	25	500						
182	25	500						
183	25	500						
184	25	500						
185	25	500						
186	25	500						
187	25	500						
188	25	500						
189	25	500						
190	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
191	25	500						
192	25	500						
193	25	500						
194	25	500						
195	25	500						
196	25	500						
197	25	500						
198	25	500						
199	25	500						
200	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
201	25	500						
202	25	500						
203	25	500						
204	25	500						
205	25	500						
206	25	500						
207	25	500						
208	25	500						
209	25	500						
210	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
211	25	500						
212	25	500						
213	25	500						
214	25	500						
215	25	500						
216	25	500						
217	25	500						
218	25	500						
219	25	500						
220	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
221	25	500						
222	25	500						
223	25	500						
224	25	500						
225	25	500						
226	25	500						
227	25	500						
228	25	500						
229	25	500						
230	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
231	25	500						
232	25	500						
233	25	500						
234	25	500						
235	25	500						
236	25	500						
237	25	500						
238	25	500						
239	25	500						
240	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
241	25	500						
242	25	500						
243	25	500						
244	25	500						
245	25	500						
246	25	500						
247	25	500						
248	25	500						
249	25	500						
250	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
251	25	500						
252	25	500						
253	25	500						
254	25	500						
255	25	500						
256	25	500						
257	25	500						
258	25	500						
259	25	500						
260	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
261	25	500						
262	25	500						
263	25	500						
264	25	500						
265	25	500						
266	25	500						
267	25	500						
268	25	500						
269	25	500						
270	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
271	25	500						
272	25	500						
273	25	500						
274	25	500						
275	25	500						
276	25	500						
277	25	500						
278	25	500						
279	25	500						
280	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
281	25	500						
282	25	500						
283	25	500						
284	25	500						
285	25	500						
286	25	500						
287	25	500						
288	25	500						
289	25	500						
290	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
291	25	500						
292	25	500						
293	25	500						
294	25	500						
295	25	500						
296	25	500						
297	25	500						
298	25	500						
299	25	500						
300	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
301	25	500						
302	25	500						
303	25	500						
304	25	500						
305	25	500						
306	25	500						
307	25	500						
308	25	500						
309	25	500						
310	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
311	25	500						
312	25	500						
313	25	500						
314	25	500						
315	25	500						
316	25	500						
317	25	500						
318	25	500						
319	25	500						
320	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
321	25	500						
322	25	500						
323	25	500						
324	25	500						
325	25	500						
326	25	500						
327	25	500						
328	25	500						
329	25	500						
330	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
331	25	500						
332	25	500						
333	25	500						
334	25	500						
335	25	500						
336	25	500						
337	25	500						
338	25	500						
339	25	500						
340	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
341	25	500						
342	25	500						
343	25	500						
344	25	500						
345	25	500						
346	25	500						
347	25	500						
348	25	500						
349	25	500						
350	25	500	M-5-31	TC-1	TC-1	1468-0005	DT481	Fixed Trimmer
351	25	500						
352	25	500						
353	25	500						
354	25	500						
355	25	500						
356	25	500						
357	25	500						
358	25							

*Used in Model CA-2A

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		HALLICRAFTERS PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
37A	50KQ	25A568	MB34	D14-123	M-44-S	Volume Control
37B	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
37C	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
38	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
39	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
40	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
41	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
42	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
43	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
44	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
45	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
46	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
47	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
48	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
49	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
50	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
51	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
52	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
53	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
54	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
55	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
56	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
57	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
58	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
59	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
60	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
61	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
62	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
63	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
64	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
65	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
66	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
67	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
68	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
69	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
70	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
71	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
72	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
73	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
74	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
75	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
76	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
77	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
78	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
79	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
80	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
81	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
82	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
83	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
84	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
85	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
86	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
87	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
88	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
89	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.
90	50KQ	25A568	MB34	D14-123	M-44-S	Not Req.

CHASSIS—TOP VIEW

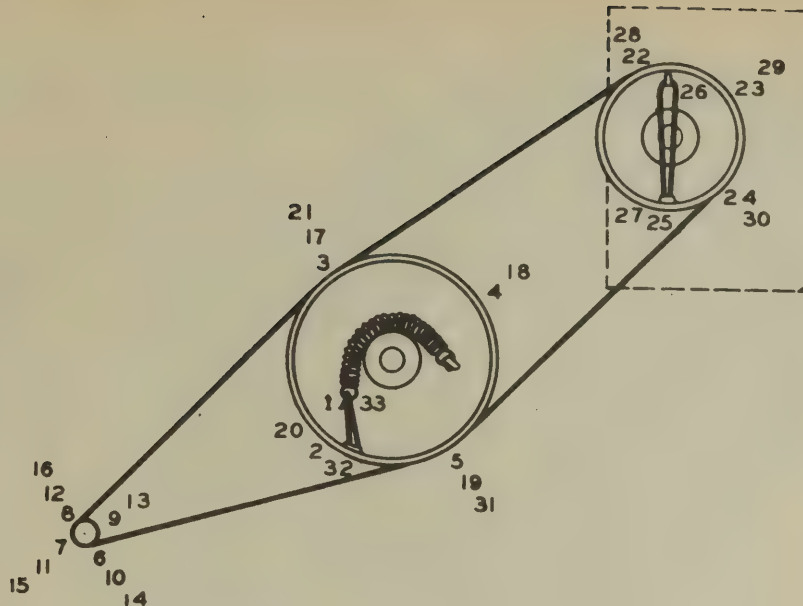
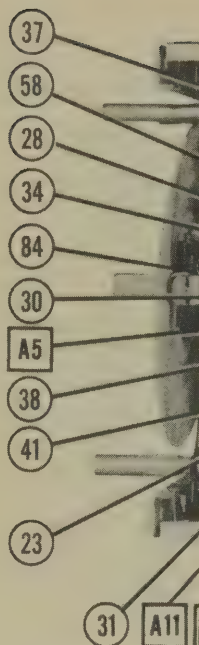


PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		HALL-CRAFTERS PART No.	IRC PART No.	
38	22KΩ	RC20AE223M	BTS-22K	Red-Red-Or. Oscillator Grid
39	1500Ω	RC20AE152M	BTS-1500	Br.-Grn.-Red Parasitic Suppressor
40	1500Ω	RC20AE152M	BTS-1500	Br.-Grn.-Red Parasitic Suppressor
41	1500Ω	RC20AE151M	BM-1-150	Br.-Grn.-Br. Converter Cathode - See Note 1
42	4700Ω	RC20AE472M	BTS-4700	Vl.-Yl.-Red Converter Screen Dropping
43	2.2 Meg.	RC20AE225M	BTS-2.2 Meg.	Red-Red-Grn. AIC Network
44	68Ω	RC20AE680M	BM-1-68	Bine-Gray-Blk. IF Cathode
45	100KΩ	RC20AE104M	BTS-100K	Br.-Blk.-Yl. IF Screen Bleeder

CHASSIS—BOTTOM VIEW



Cut a 30" length of 12 lb. test dial cord and tie one end of the tension spring on the pulley mounted on the hub of the bandswitch at position "1" on the diagram. Follow the numbers from "1" to "33", stretch the tension spring and tie cord securely. Cut off excess cord.

Dial cable stringing procedure.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BE6	-5.3VDC§	1.1VDC	12VDC	OV.	100VDC	70VDC	OV.	-
2	12BA6	OV.	OV.	12VDC	OV.	100VDC	100VDC	3VDC	-
3	12AT6	-.1VDC	.4VDC	12VDC	OV.	OV.	OV.	83VDC	-
4	6V6GT	OV.	6VDC	300VDC	300VDC	75VDC	OV.	OV.	108VDC
5	6J5	OV.	6VDC	230VDC	OV.	-10VDC§	11VDC	12VDC	11VDC
6	6V6GT	OV.	OV.	210VDC	210VDC	7VDC	OV.	6VDC	11VDC
7	6X5GT	OV.	6VDC	280VAC	OV.	280VAC	OV.	12VDC	300VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BE6	24KΩ	160Ω	2Ω	0Ω	4KΩ	9KΩ	1.5KΩ	-
2	12BA6	3.5 Meg.	0Ω	2Ω	0Ω	4KΩ	4KΩ	90Ω	-
3	12AT6	10 Meg.	1KΩ	2Ω	0Ω	1.1 Meg.	0Ω	520KΩ	-
4	6V6GT	0Ω	1Ω	150KΩ	150KΩ	470KΩ	1.2Ω	0Ω	4KΩ
5	6J5	0Ω	1Ω	150KΩ	INF.	47KΩ	4KΩ	2Ω	4KΩ
6	6V6GT	0Ω	0Ω	150KΩ	150KΩ	10KΩ	INF.	1Ω	4KΩ
7	6X5GT	0Ω	1Ω	105Ω	INF.	95Ω	INF.	2Ω	150KΩ

± TAKEN WITH RELAY CLOSED.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Battery voltage maintained at 12 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		HALLICRAFTERS PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Converter	12BE6	12BE6	7CH	AF Amp. on Transmit Modulator on Transmitter
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	6V6GT	6V6GT	7AC	
5	Oscillator	6J5	6J5	6Q	
6	Power Amp.	6V6GT	6V6GT	7AC	
7	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

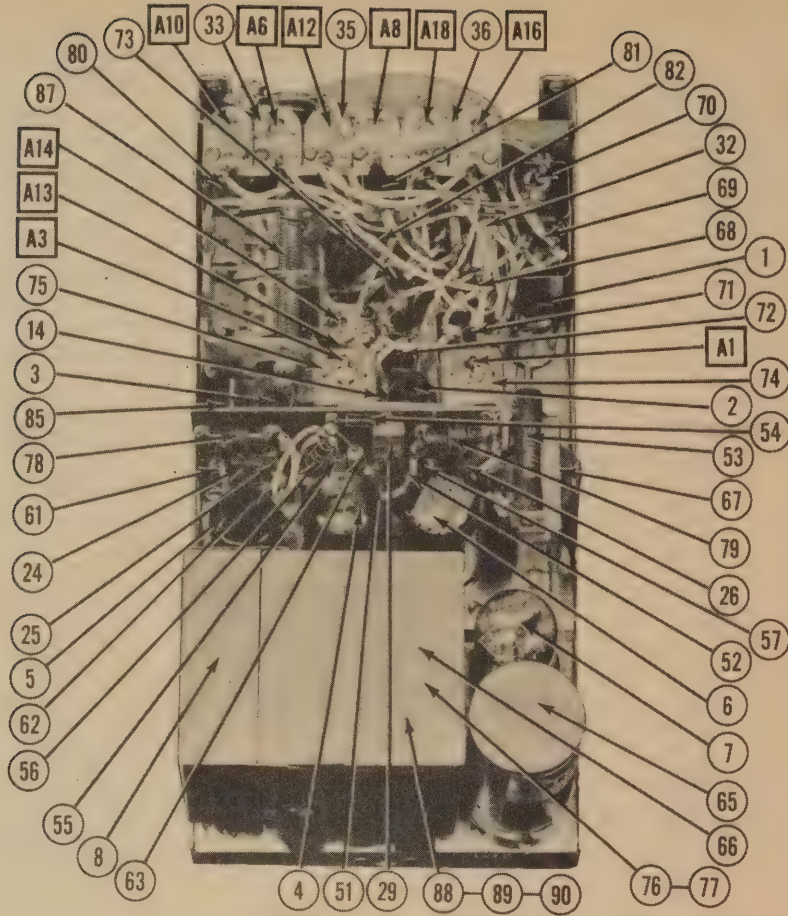
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		HALLICRAFTERS PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
8A	8 CAP.	45C104		M-2X8-450		Filter - Red
8B	8 CAP.			K-2X20-150		Cathode Bypass-Yellow
9	.05 CAP.	46A099-3	TP426	M-500-15	TC-15	Fil. Bypass
10	.01 CAP.	46A099-2	TP426	TTR-1.5-05	484-05	Hash Filter
11A	.02 CAP.	46A099-1	TP426	TTR-1.5-01	484-01	*11. Bypass
11B	.002 CAP.	46A099-2	TP426	S-6-002	TC-12	Output Plate Bypass*
12	.01 CAP.	46A099-3	TP426	TC-11	684-002	Cathode Bypass
13	.05 CAP.	46A099-2	TP426	TTR-1.5-01	484-01	Voice Range Filter
14	.002 CAP.	46A100-1	TP405	S-6-002	TC-15	Audio Coupling
15	.001 CAP.	46A099-5	TP404	S-6-001	684-001	Mic. Coupling
16	.005 CAP.	46A100-2	TP430	TTF-1.5-25	TC-21	Diode Bypass
17	.0005 CAP.	46A100-3	TP403	S-6-005	TC-31	IF Screen Bypass
18	.01 CAP.	46A099-4	TP428	TTR-1.5-1	484-01	Sens. Control Bypass
19	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	AVC Filter
20	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Conv. Cathode Bypass
21	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Osc. Coupling
22	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Neon Ind. Coupling
23	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer
24	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	AF Plate Bypass
25	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Pad Cer.
26	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
27	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
28	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
29	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
30	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
31	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
32	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
33	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
34	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
35	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
36	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
37	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
38	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
39	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
40	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
41	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
42	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
43	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
44	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
45	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
46	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
47	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
48	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
49	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
50	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
51	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
52	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
53	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
54	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
55	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
56	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
57	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
58	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
59	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
60	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
61	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
62	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
63	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
64	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
65	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
66	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
67	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
68	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
69	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
70	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
71	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
72	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
73	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
74	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
75	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
76	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
77	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
78	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
79	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
80	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
81	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
82	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
83	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
84	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
85	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
86	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
87	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
88	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
89	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.
90	.01 CAP.	46A099-2	TP421	TTR-1.5-01	484-01	Fixed Trimmer Cer.

*Used in Model CA-2A.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		HALLICRAFTERS PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
37A	50KΩ	25A568	MP34	D14-123	M-44-S	Volume Control
38	50KΩ	25A568	MP34	D14-123	M-44-S	Attach to 37A per instructions
39	50KΩ	25A568	MP34	D14-123	M-44-S	Not Req.
40	50KΩ	25A568	MP34	D14-123	M-44-S	SW-A

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	HALLI-CRAFTERS PART No.	IRC PART No.	
38	22K	1/2	RC20AE223M	BTS-22K	Red-Red-Or. Oscillator Grid
39	1500	1/2	RC20AE152M	BTS-1500	Br.-Grn.-Red Parasitic Suppressor
40	1500	1/2	RC20AE152M	BTS-1500	Br.-Grn.-Red Parasitic Suppressor
41	150	1/2	RC20AE151M	BW-1-150	Br.-Grn.-Br. Converter Cathode - See Note 1
42	4700	1/2	RC20AE472M	BTS-4700	Yl.-Vl.-Red Converter Screen Dropping
43	2.2 Meg.	1/2	RC20AE225M	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
44	68	1/2	RC20AE680M	BW-1-68	Blue-Gray-Blk. IF Cathode
45	100K	1/2	RC20AE104M	BTS-100K	Br.-Blk.-Yl. IF Screen Bleeder
46	47K	1/2	RC20AE473M	BTS-47K	Yl.-Vl.-Or. Diode Filter
47	1 Meg.	1/2	RC20AE105M	BTS-1 Meg.	Br.-Blk.-Grn. Diode Load
48	1000	1/2	RC20AE102M	BTS-1000	Br.-Blk.-Red AF Cathode
49A	220	1/2	RC20AE221M	BW-1-220	Red-Red-Br. Microphone Load - See Note 2
49B	1800	1/2	RC20AE182M	BTS-1800	Br.-Gray-Red Microphone Load-Note 3
50	10 Meg.	1/2	RC20AE106M	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
51	470K	1/2	RC20AE474M	BTS-470K	Yl.-Vl.-Yl. AF Plate Load
52	470K	1/2	RC20AE474M	BTS-470K	Yl.-Vl.-Yl. Output Grid
53	3900	10	24B3925	AB-4000	Output Cathode
54	15	1/2	RC20AE150M	BW-1-15	Br.-Grn.-Blk. Output Cathode
55	100	1	RC30AE101M	BW-1-100	Br.-Blk.-Br. Output Cathode
56	220	1	RC30AE221M	BW-1-220	Red-Red-Br. Output Cathode
57	2200	1	RC20AE222M	BTS-2200	Red-Red-Red Filter
58A	39	2	RC40AE90M	BW-2-39	Or.-White-Blk. Series Pilot Light - See Note 2
58B	68	2	RC40AE680M	BW-2-68	Blue-Gray-Blk. Series Pilot Light-Note 3
59	150	1/2	RC20AE151M	BW-1-150	Br.-Grn.-Br. Hash Suppression
60	75	1/2	RC20AE750M	BW-1-75	Vl.-Grn.-Blk. Microphone Load
61	47K	1/2	RC20AE473M	BTS-47K	Yl.-Vl.-Or. Crystal Oscillator Grid
62	10K	1/2	RC20AE103M	BTS-10K	Br.-Blk.-Or. Power Amplifier Grid
63	100	1/2	RC20AE101M	BW-1-100	Br.-Blk.-Br. Power Amplifier Cathode
64	47	1/2	RC20AE470M	BW-1-47	Yl.-Vl.-Blk. Modulator Cathode

Note 1 - Some models use 220K in this application. IRC replacement BW-1-220.
Note 2 - Used in CA-2
Note 3 - Used in CA-2A

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				HALLI-CRAFTERS PART No.	MALLORY PART No.	RADIART PART No.	
65	Interrupter	12	180	27A139		5517-12	

TRANSFORMER VIBRATOR

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	HALLI-CRAFTERS PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
66	12V DC @ 3.5A	560V CT @ .108A			52C126			

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE	PRI.	SEC. 1	SEC. 2	HALLI-CRAFTERS PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
67	4200	3.2	170	.62	55A075				
TURNS RATIO									
Pri. to Sec. 2									
15 to 1									

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

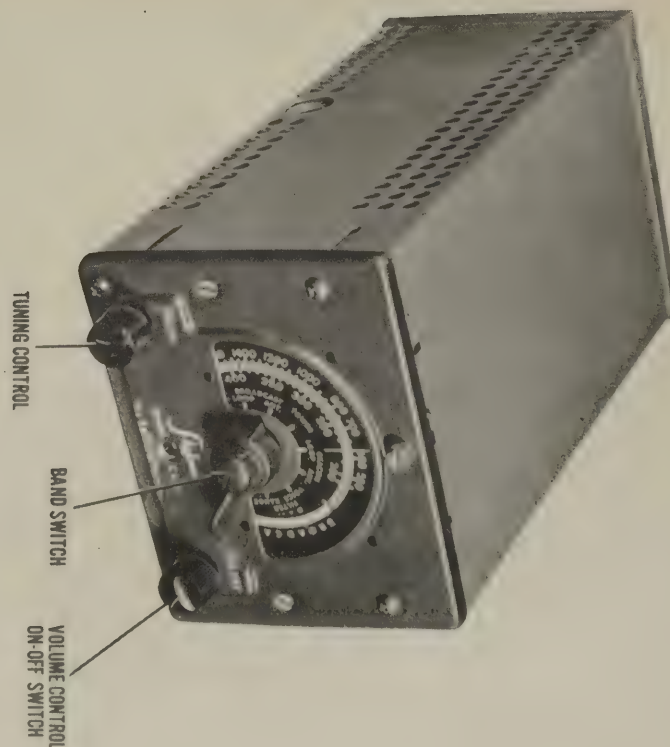
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	HALLI-CRAFTERS PART No.	MEISSNER PART No.	
68	BC Ant. Coil, Loop	.5	2.3	51B864		
69	Beacon Ant. Coil, Loop	.5	2.2	51B863		
70	BC Ant. Coil	.34	2.8	51B860		
71	Beacon Ant. Coil	.9	1.6	51B859		
72	BC Osc. Coil	3.5		51B862		
73	Beacon Osc. Coil	8.5		51B861		
74	Input IF	11	11	50B206		
75	Output IF	11	11	50B207		
76	RF Choke			53A100		* Enclosed in power assembly.
77	"			53A100		
78	"			53A101		
79	"			53A101		
80	Range Filter			56B072		

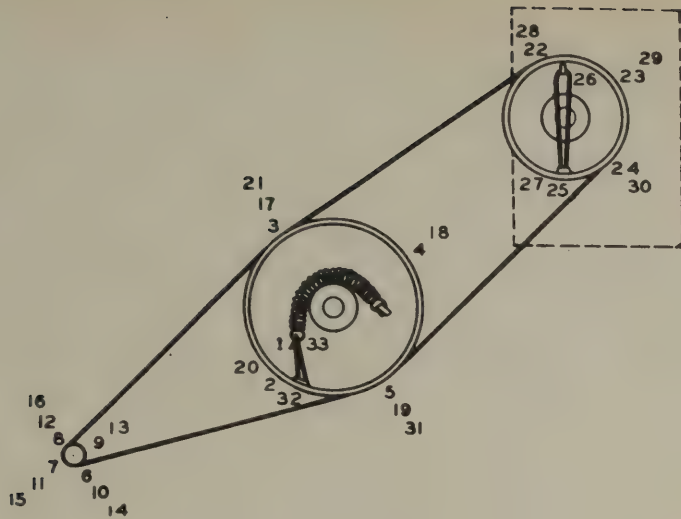
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					HALLI-CRAFTERS PART No.		
81	Bayonet	6-8	.25	Blue	39A003		Type 44

MISCELLANEOUS

ITEM No.	PART NAME	HALLI-CRAFTERS PART No.	NOTES
82	Bandswitch	60C260	
83	Spark Plate	39A012	Neon Indicator
84	Lamp	19A1210	3105KC
85	Crystal	21B072	
86	Relay	48C182	(16-448 MTF, 16-448 MTF)
87	2 Gang Var.Cap.	83C291	
	Dial Scale	22B170	
	Dial Window		





Cut a 30" length of 12 lb. test dial cord and tie one end of the tension spring on the pulley mounted on the hub of the bandswitch at position "1" on the diagram. Follow the numbers from "1" to "33", stretch the tension spring and tie cord securely. Cut off excess cord.

Dial cable stringing procedure.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BE6	-5.3VDC§	1.1VDC	12VDC	0V.	100VDC	70VDC	0V.	-
2	12BA6	0V.	0V.	12VDC	0V.	100VDC	100VDC	3VDC	-
3	12AT6	-1.1VDC	.4VDC	12VDC	0V.	0V.	0V.	83VDC	-
4	6V6GT	0V.	6VDC	300VDC	300VDC	75VDC	0V.	0V.	108VDC
5	6J5	0V.	6VDC	230VDC	0V.	-10VDC§	11VDC	12VDC	11VDC
6	6V6GT	0V.	0V.	210VDC	210VDC	7VDC	0V.	6VDC	11VDC
7	6X5GT	0V.	6VDC	280VAC	0V.	280VAC	0V.	12VDC	300VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

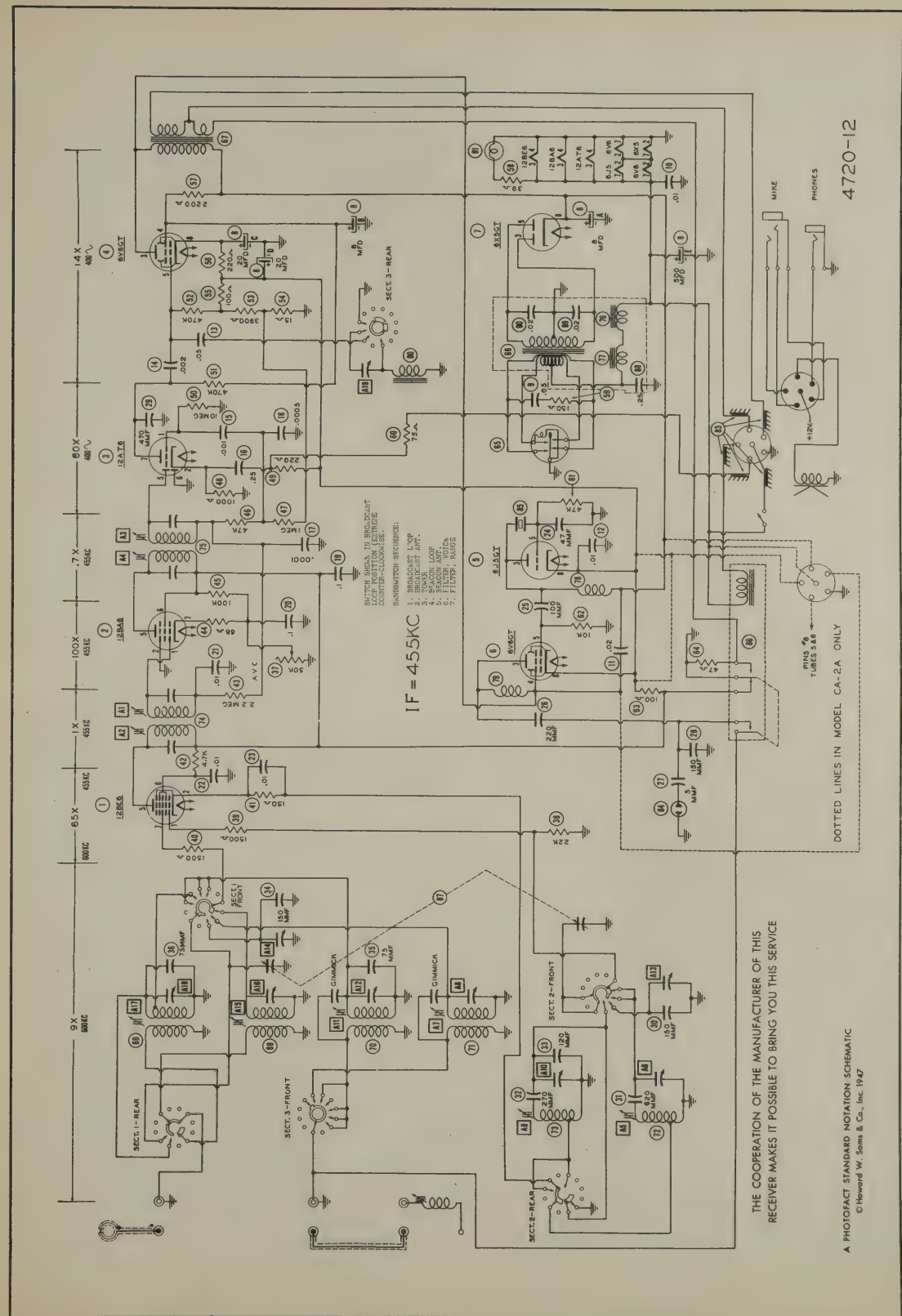
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BE6	24KΩ	160Ω	2Ω	0Ω	4KΩ	9KΩ	1.5KΩ	-
2	12BA6	3.5 Meg.	0Ω	2Ω	0Ω	4KΩ	4KΩ	90Ω	-
3	12AT6	10 Meg.	1KΩ	2Ω	0Ω	1.1 Meg.	0Ω	520KΩ	-
4	6V6GT	0Ω	1Ω	150KΩ	150KΩ	470KΩ	1.2Ω	0Ω	4KΩ
5	6J5	0Ω	1Ω	150KΩ	INF.	47KΩ	4KΩ	2Ω	4KΩ
6	6V6GT	0Ω	0Ω	150KΩ	150KΩ	10KΩ	INF.	1Ω	4KΩ
7	6X5GT	0Ω	1Ω	105Ω	INF.	95Ω	INF.	2Ω	150KΩ

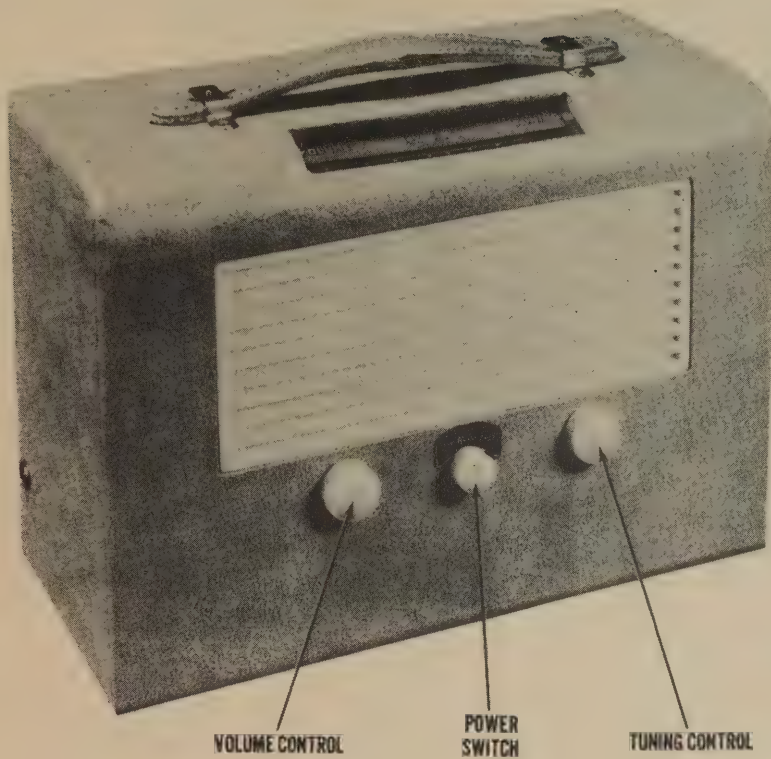
§ TAKEN WITH RELAY CLOSED.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Battery voltage maintained at 12 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



KNIGHT MODEL 5C-290

TRADE NAME Knight, Model 5C-290 SUPPLIER Allied Radio Corp., 833 W. Jackson Blvd., Chicago 7, Ill. TYPE SET Three Power Portable Superheterodyne with Loop Antenna TUBES (FOUR) Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output. POWER SUPPLY 110-125 Volts AC-DC or 9 Volts DC "A" Supply and 90 Volts DC "B" Supply RATING .140 Amp. @ 117 Volts AC or 52MA @ 9 Volts DC and 13MA @ 90 Volts DC TUNING RANGE—BROADCAST 540-1650KC						
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Volume control should be at maximum position output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MMF to reduce hum modulation.
2 .1 MFD	"	1650KC	"	"	A5	Adjust for maximum output. Replace receiver in cabinet.
3	Loop	1400KC	Tune for maximum output.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. A6 is accessible through a hole in top of cabinet.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		KNIGHT PART No.	STANDARD REPLACEMENT	
1	Converter	1A7GT	1A7GT	7Z
2	IF Amp.	1N5GT	1N5GT	5Y
3	Det.-AVC-AF	1H5GT	1H5GT	5Z
4	Power Output	3Q5GT	3Q5GT	7AP

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		KNIGHT PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
5A	40 CAP. 150 VOLT	EC-4	FP357	DT-3X40-150	EL-340	UP44415 Filter
5B	40 CAP. 150 VOLT	EC-6	TC2501	M-100-25	UHC-102	PRS25-100 Filament Bypass
6	70 CAP. 25 VOLT	PC-5	TP426	S-4-05	TC-15	484-05 Line Filter
7	0.05 CAP. 400 VOLT	PC-6	TP408	S-6-005	TC-25	684-005 Output Plate Bypass
8	0.005 CAP. 600 VOLT	PC-6	TP408	S-6-005	TC-25	684-005 Audio Coupling
9	0.005 CAP. 600 VOLT	PC-6	TP408	S-6-005	TC-25	684-005 Audio Coupling
10	0.005 CAP. 600 VOLT	PC-6	TP426	S-4-05	TC-15	484-05 Audio Plate Decoupling
11	0.05 CAP. 400 VOLT	PC-8	TP428	S-4-1	TC-1	484-1 AVC Filter
12	0.05 CAP. 400 VOLT	PC-8	TP428	S-4-1	TC-1	484-1 Line Isolation
13	0.05 CAP. 400 VOLT	PC-8	TP428	S-4-1	TC-1	484-1 Conv. Screen Bypass
14	0.05 CAP. 400 VOLT	PC-8	TP428	S-4-1	TC-1	484-1 Audio Plate Bypass
15	0.05 CAP. 400 VOLT	PC-2	MP235	MO-5-31	1FM-31	1468-0001 Diode Filter
16	100 CAP. 500 VOLT	MC-2	MP235	MO-5-31	1FM-31	1468-0001 Osc. Grid Cap.
17	100 CAP. 500 VOLT	MC-2	MP235	MO-5-31	1FM-31	1468-0001
18	100 CAP. 500 VOLT	MC-2	MP235	MO-5-31	1FM-31	1468-0001

CONTROLS

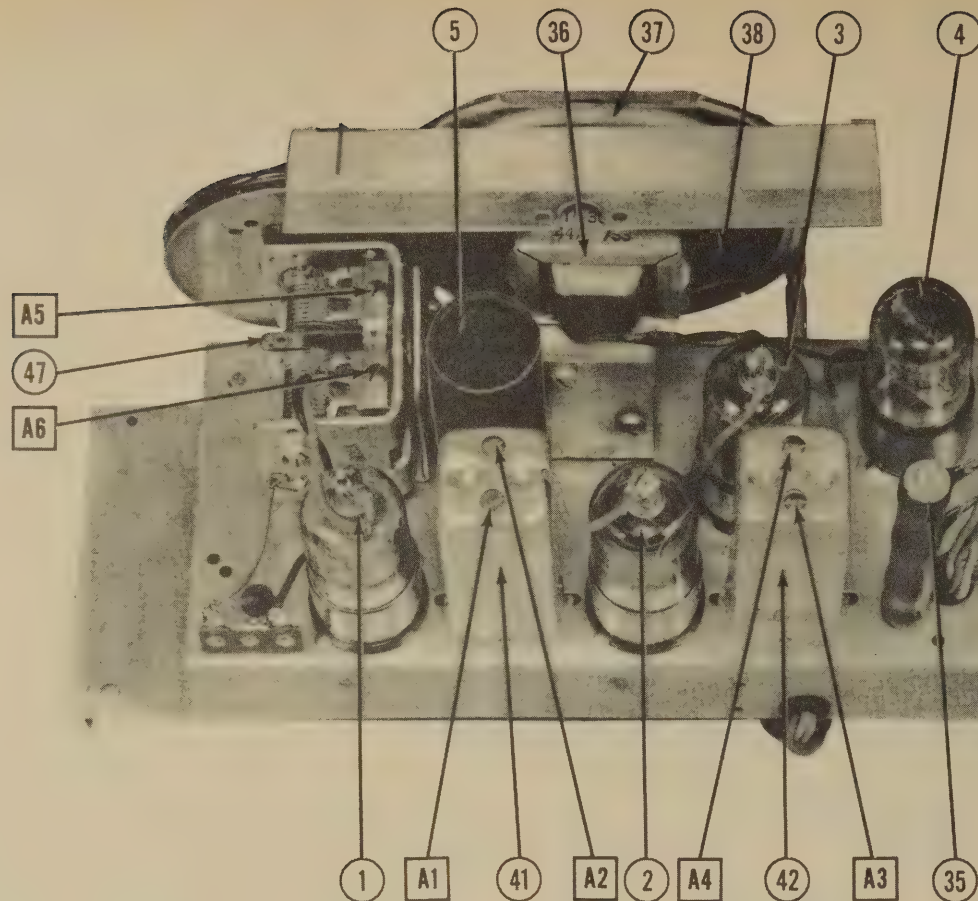
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		KNIGHT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
19A	1.5 Meg. Shaft	VC-2	MA402	DI3-137 E	AM-63-2 KSS-3	Volume Control Attach to 19A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		KNIGHT PART No.	IRC PART No.	
20	250KΩ	1R-20	BTS-220K	Red-Grn.-Yl. Oscillator Grid
21	250KΩ	1R-20	BTS-220K	Red-Grn.-Yl. Line Isolation
22	47KΩ	1R-10	BTS-47K	Yl.-Vi.-Or. Converter Screen Dropping
23	3.3 Meg.	1R-23	BTS-3.3 Meg	Or.-Or.-Grn. AVC Network
24	100KΩ	1R-3	BTS-100K	Br.-Blk.-Yl. Diode RF Filter
25	10 Meg.	1R-3	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
26	1.5 Meg.	1R-11	BTS-1.5 Meg	Br.-Grn.-Grn. AF Plate Load-See Note 1
27	470KΩ	1R-13	BTS-470K	Yl.-Vi.-Yl. AF Plate Decoupling
28	2.2 Meg.	1R-13	BTS-2.2 Meg	Red-Red-Grn. Output Grid
29	680Ω	1R-32	BTS-680	Blue-Gray-Br. Filament String
30	270Ω	1R-33	BW-2-270	Red-Vi.-Br. Filament String
31	330Ω	1R-21	BW-2-330	Or.-Or.-Br. Filament String
32	620Ω	1R-39	BTS-680	Blue-Red-Br. Filter
33	620Ω	1R-39	BTS-680	Blue-Red-Br. Filter
34	82Ω	1R-35	BW-2-82	Gray-Red-Blk. Surge Limiter
35A	1050Ω	WR-3A	AB-1000	Filament Dropping
35B	1050Ω	WR-3A	AB-1000	"
35C	40Ω	WR-3A	ABA-50	" - See Note 2

Note 1 - Some models use 1 Meg. in this application. IRC replacement BTS-1 Meg.
Note 2 - On IRC replacement set slider at 40Ω from one end.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	KNIGHT PART No.	STANCOR PART No.	MERIT PART No.	
36	6400Ω 3.1Ω	PRI. SEC. 250Ω .4Ω	A-3978*	T22846*	A-2931*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	KNIGHT PART No.	JENSEN PART No.	
37	PW	3.1Ω	SPK-5	ST-105† Mod. FS-X	†Drill and tap magnet frame and trim flange.
38	CONC DIA. 4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

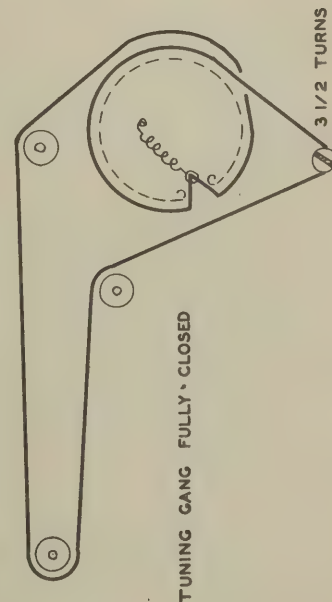
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	KNIGHT PART No.	MEISSNER PART No.
39	Loop Ant.	.3Ω	1.5Ω	LL-10	
40	Use. Coil	1Ω	1.5Ω	L0-8	14-1040
41	Input IF	19Ω	20Ω	L1-3	16-6866
42	Output IF	19Ω	19Ω	LI-4	16-6867

BATTERIES

ITEM No.	VOLTAGE	KNIGHT PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
43	9V "A"		#746			2 Used in Series
44	90V "B"			#482		

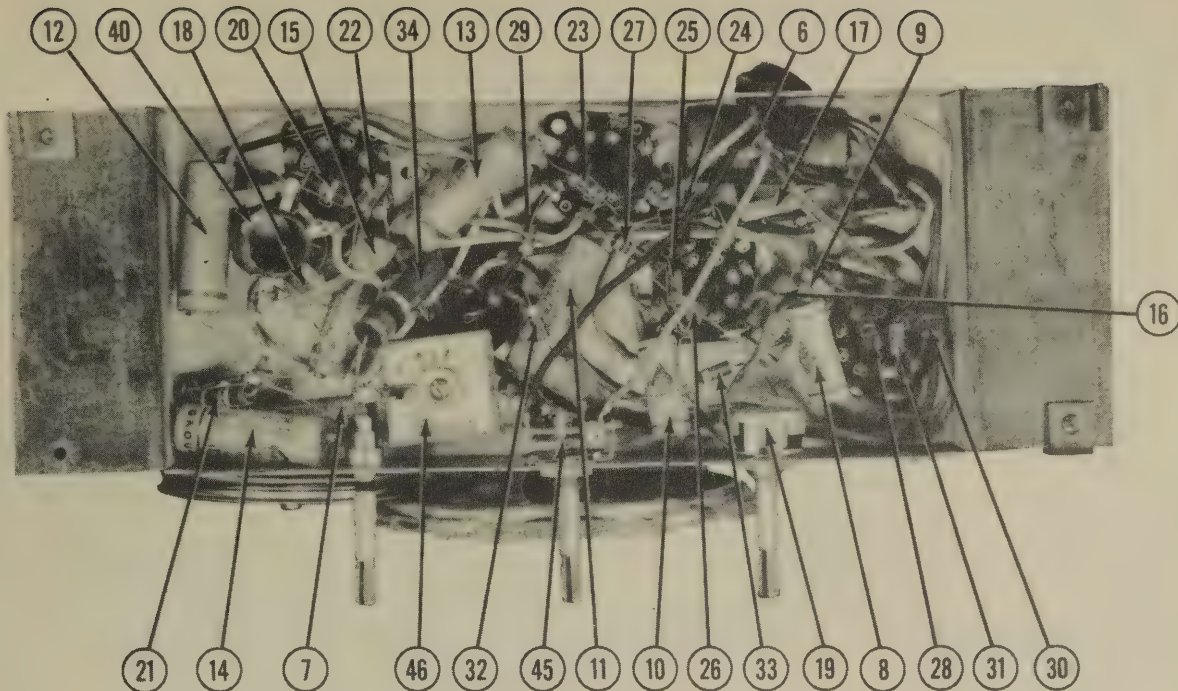
MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
45	Switch	SW-5	Off-AC-DC-Batt. Selenium SR-1 (37-216 MTF, 37-468 MTF) Ant. AG1.
46	Rectifier	SR-1	
47	2 Gang Var. Cap	GC-4	
48	Trimmer	TC-7	



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Title	Fin 1	Fin 2	Fin 3	Fin 4	Fin 5	Fin 6	Fin 7	Fin 8	Cap
1	LABOR	0V.	2.700C	9000C	4200C	77,700C\$	9000C	1.300C	0V.	0V.
2	INSTR	0V.	400C	9000C	9000C	-2700C	9000C	2.700C	2.700C	2.700C
3	INSTR	0V.	1.300C	4200C	0V.	-300C	7700C	0V.	-300C	0V.
4	INSTR	0V.	6.600C	9000C	9500C	0V.	900C	400C	5.400C	-

STAKEN WITH VACUUM TUBE VOLTMETER

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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RESISTANCE TRAINING

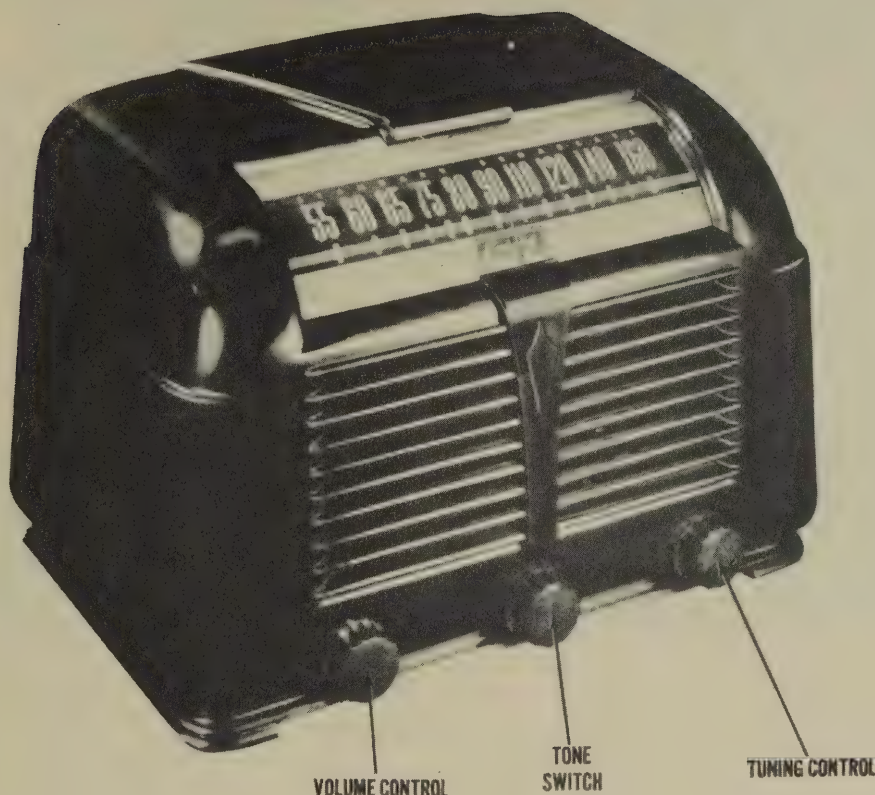
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	220K Ω	\emptyset	3.5K Ω	50K Ω	250K Ω	3.5K Ω	\emptyset	1M Ω	4 Meg.
2	1N50T	220K Ω	2	3.5K Ω	3.5K Ω	1 Meg.	3.5K Ω	\emptyset	4 Meg.	402
3	1N50T	1M Ω	1	1.5 Meg.	1.0 Meg.	1.2 Meg.	560K Ω	02	1.2 Meg.	10 Meg.
4	3550T	02	\emptyset	4K Ω	3.5K Ω	2 Meg.	85 Ω	\emptyset	-	-

DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to B- during stage gain measurements.



KNIGHT MODEL 6C-225

TRADE NAME Knight, Model 6C-225
SUPPLIER Allied Radio Corp., 833 W. Jackson Blvd., Chicago, 7, Ill.
TYPE SET AC-DC Operated Superheterodyne with Loop Antenna
TUBES (SIX) Types, 14A7 RF Amp., 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 35A5 Power Output, 35Y4 Rectifier.

POWER SUPPLY 110-120 Volts AC-DC
TUNING RANGE—BROADCAST 535-1620KC

RATING .210 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer at reference mark at left end of dial back plate.
 Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-.
 Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to Pin 6 (grid) 14Q7. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
2 100MMFD	High side to ext. ant. lead. Low side to B-.	1620KC	"	"	A5	Adjust for maximum output.
3 100MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

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Printed in U. S. of America
 DATE 12/47 SET #30 FOLDER #4720-14

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

KNIGHT
MODEL 8C-225

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			RMA BASE TYPE	INSTALLATION NOTES
		KNIGHT PART No.	STANDARD REPLACEMENT			
1	RF Amp.	14A7	14A7		8V	
2	Converter	14Q7	14Q7		8AL	
3	IF Amp.	14A7	14A7		8V	
4	Det.-AVC-AF	14B6	14B6		8W	
5	Power Output	35A5	35A5		6AA	
6	Rectifier	35Y4	35Y4		5AL	

CAPACITORS Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

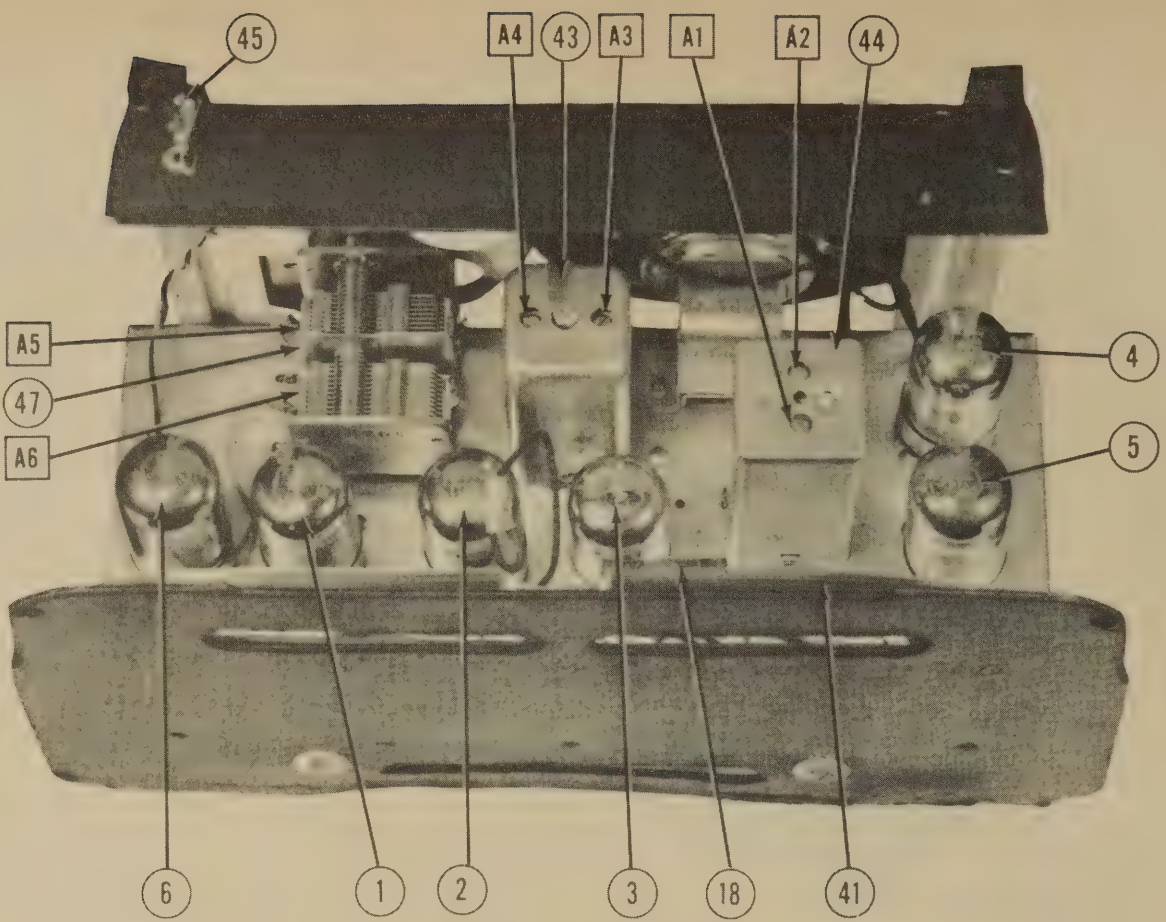
ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES
		KNIGHT PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	CAP. 40	N-3658	FP214	DY-2x40-150	EL-25	AF98D	UP4415
8	150	N-1346	TP426	MPH-4-05	TC-15	484-05	DT4S5
9	.05	N-1344	TP421	S-4-01	TC-11	484-01	DT4S1
10	.01	N-1346	TP426	S-4-05	TC-15	484-05	DT4S5
11	.01	N-1344	TP421	S-4-01	TC-11	484-01	DT4S1
12	.005	N-4894	TP408	S-6-005	TC-25	884-005	DT6N5
13	.2	N-5160	TP429	S-4-2	TC-2	484-2	DT4P2
14	.1	N-1351	TP428	S-4-1	TC-1	484-1	DT4P1
15	.05	N-1345	TP426	S-4-05	TC-15	484-05	DT4S5
16	.05	N-1345	TP426	S-4-05	TC-15	484-05	DT4S5
17	.0005	N-4890	TP403	S-6-0005	TC-35	1468-0005	DT6T5
18	.01	N-1344	TP421	S-4-01	TC-11	484-01	DT4S1
19	100	N-1374	MC235	MO 5-51	LFM-31	1468-0001	5W45T1
20	150	N-2383	MC236	MO 5-315	LFM-315	1468-00015	5W5T15

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		KNIGHT PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
21A	500KΩ	N-5026 or N-4943	MX401	D13-133 E	AM-60-2	Volume Control
B	Switch	Not Req.	Not Req.	41	X5S-3	Attach to 21A per instructions
C					SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		KNIGHT PART No.	IRC PART No.		
22	47KΩ	N-4063	BTS-47K		Y1-V1-Or. RF Screen Dropping
23	2200Ω	N-4896	BTS-2200		Red-Red-Red RF Plate Load
24	47KΩ	N-4087	BTS-47K		Y1-V1-Or. Converter Grid
25	22KΩ	N-5351	BTS-22K		Red-Red-Or. Oscillator Grid
26	470Ω	N-4066	BTS-470		Y1-V1-Br. Decoupling
27	1 Meg.	N-1262	BTS-1 Meg.		Br.-Blk.-Grn. AVC Network
28	82Ω	N-5857	BW-82		Gray-Red-Blk. IF Cathode
29	220KΩ	N-4026	BTS-220K		Red-Red-Y1. Line Isolation
30	33Ω	N-4628	BW-1-33		Or.-Or.-Blk. Line Dropping
31	47KΩ	N-4063	BTS-47K		Y1-V1-Or. Series Volume Control
32	4.7 Meg.	N-4061	BTS-4.7 Meg.		Red-Red-Y1. AF Plate Load
33	220KΩ	N-4988	BTS-220K		Y1-V1-Y1. Output Grid
34	470KΩ	N-4027	BTS-470K		Br.-Gray-Br. Output Cathode
35	180Ω	N-4067	BW-180		Br.-Red-Red Filter
36	1200Ω	N-4900	BTA-1200		Or.-Or.-Blk. Surge Limiter
37	33Ω	N-4022	BW-33		



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI.	SEC.	KNIGHT PART No.	THORDAF N PART No.	
38	2100Ω	12.5Ω	205Ω	.55Ω	N-4875	A-3876*	*Add extra filter to reduce hum level.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	KNIGHT PART No.	JENSEN PART No.	
39	PM	2.6Ω	N-4868	ST-105T Mod. PS-X	*Fabricate new mounting bracket.
40	CONC DIA.	VC DIA.			NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.
	4-5/8"	1/2"			

R F COILS

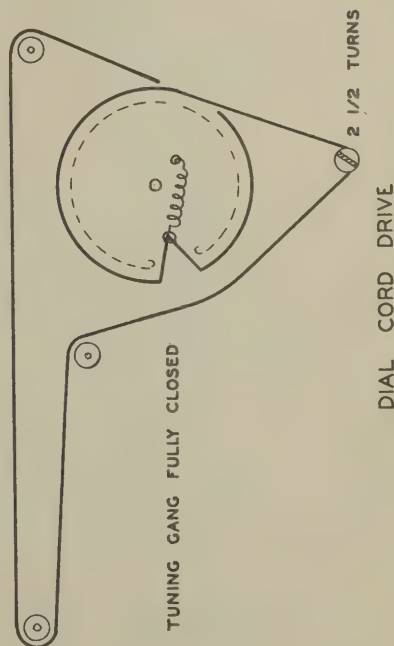
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	KNIGHT PART No.	MEISSNER PART No.	
41A	Loop Ant.	.1Ω	1.5Ω	N-5937		Used with Tuning Gang N-5286
42	Loop Ant.	.5Ω	6.1Ω	N-5765		Used with Tuning Gang N-5936
43	Osc. Coil	13Ω	14Ω	N-4810		*Add 50 MFD from grid to high side tuning cap.
44	Output IF	19Ω	19Ω	N-4872		
				N-5571		

DIAL LIGHT

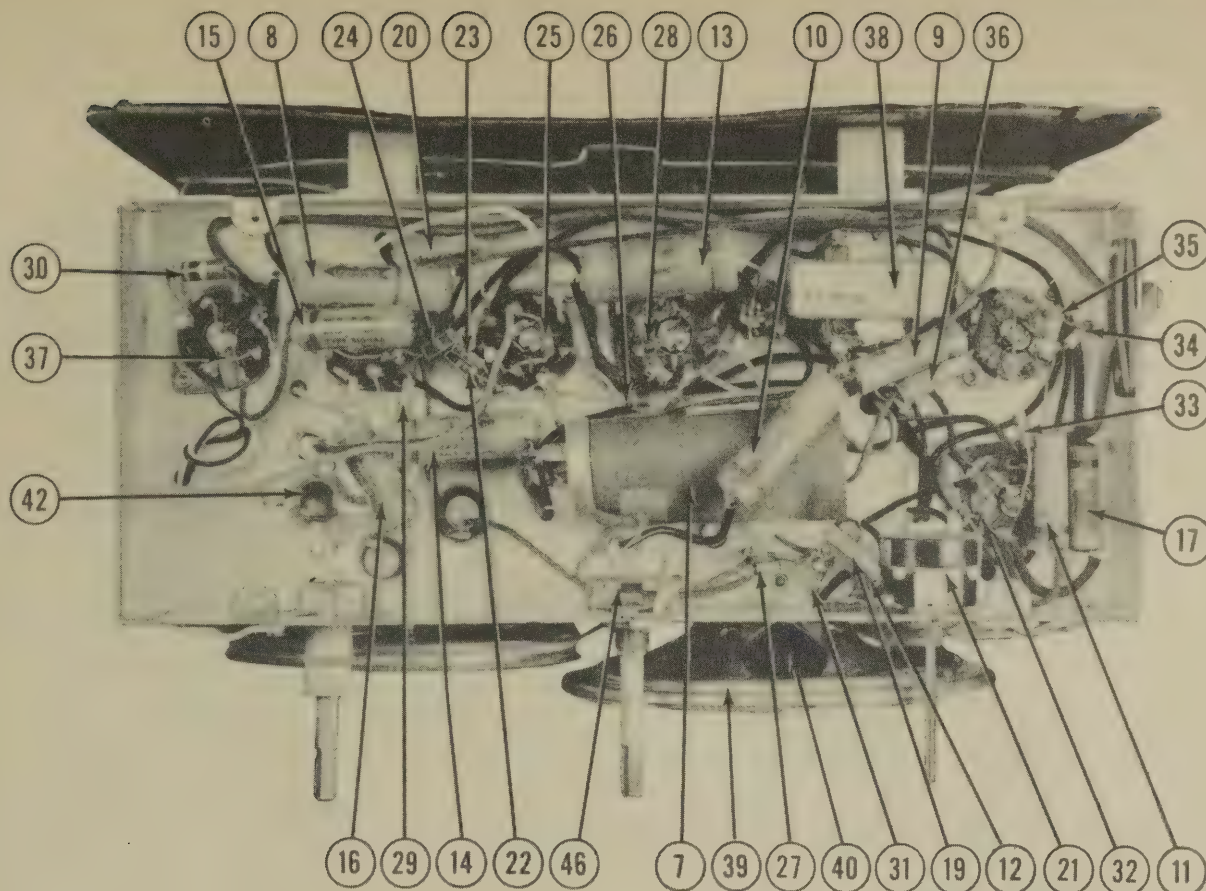
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	KNIGHT PART No.	
45	Bayonet	6-8	0.15	Brown		Type 47

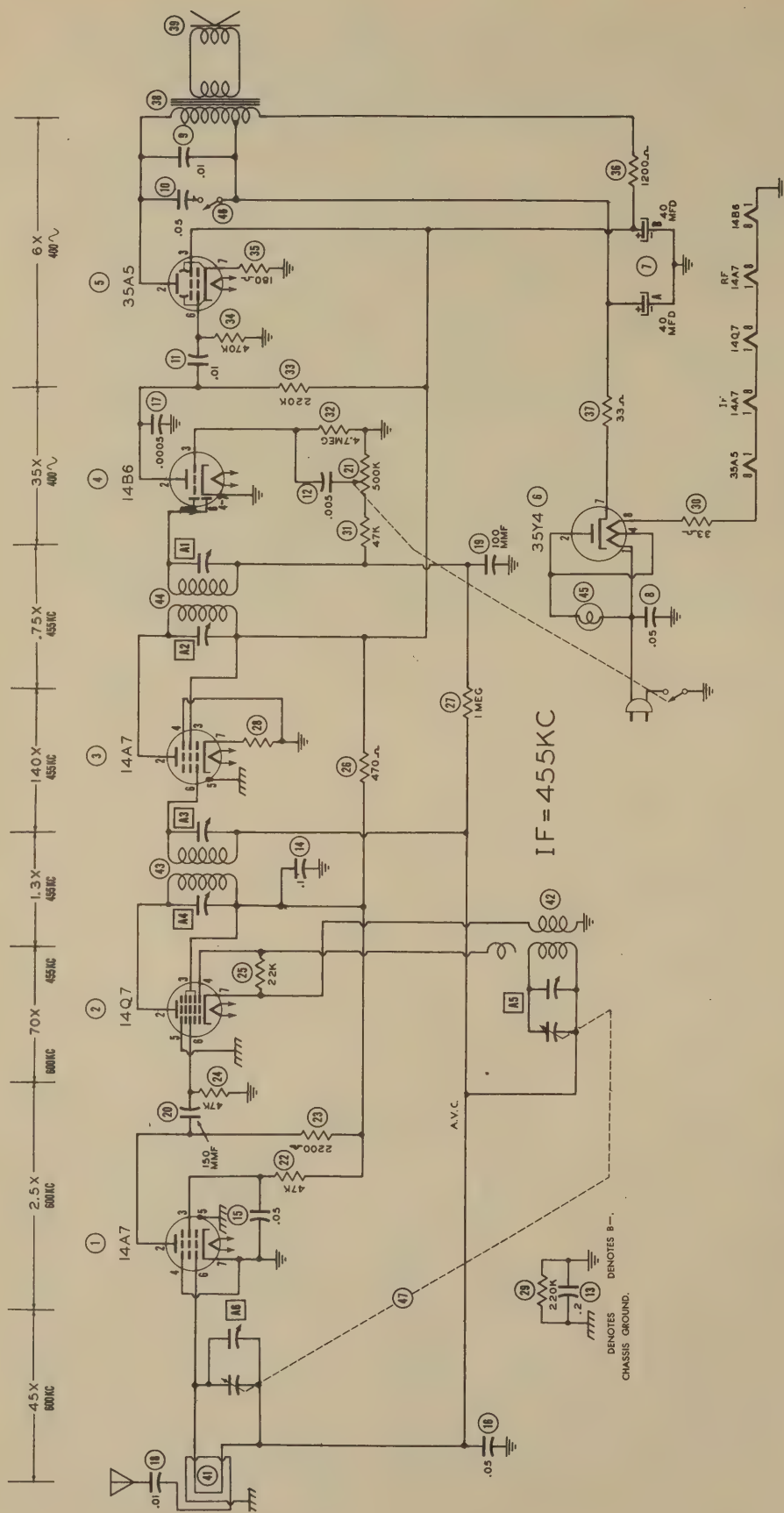
MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
46	Tone Switch	N-4942	
47A2	Gang Var. Cap.	N-5286	(30-465 MUF, 33-197 MUF)
B"	"	N-5936	Alternate



CHASSIS—BOTTOM VIEW





		FOURTH READINGS							
		Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
Tube	Item	24VAC	71VDC	42VDC	OV.	OV.	-4VDC	OV.	12VAC
1	1447	24VAC	71VDC	42VDC	OV.	OV.	-4VDC	OV.	12VAC
2	1427	37VAC	78VDC	78VDC	-12VDC	OV.	-1VDC	OV.	24VAC
3	1447	49VAC	83VDC	83VDC	OV.	OV.	-4VDC	9VDC	37VAC
4	1486	OV.	60VDC	-39VDC	OV.	-8VDC	-6VDC	OV.	12VAC
5	3545	49VAC	108VDC	83VDC	OV.	OV.	OV.	5.6VDC	82VAC
6	3534	117VAC	113VAC	113VAC	113VAC	OV.	82VAC	11VDC	37VAC

		RESISTANCE READINGS							
		Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1.447	255Ω	60KΩ	105KΩ	Ω	220KΩ	Ω	1.0 MΩ	15Ω
2	1.427	2.9KΩ	60KΩ	60KΩ	22KΩ	220KΩ	47KΩ	.9Ω	25Ω
3	1.447	50Ω	60KΩ	60KΩ	Ω	220KΩ	1.6 MΩ	85Ω	36Ω
4	1.486	Ω	220KΩ	4.5 MΩ	Ω	520KΩ	580KΩ	Ω	15Ω
5	3545	50Ω	60KΩ	60KΩ	INF.	Ω	500KΩ	1.8Ω	80Ω
6	35745	14.0Ω	139Ω	60KΩ	138Ω	INF.	80Ω	60KΩ	115Ω

STAKEN WITH VACUUM TIRE VOLT METER

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

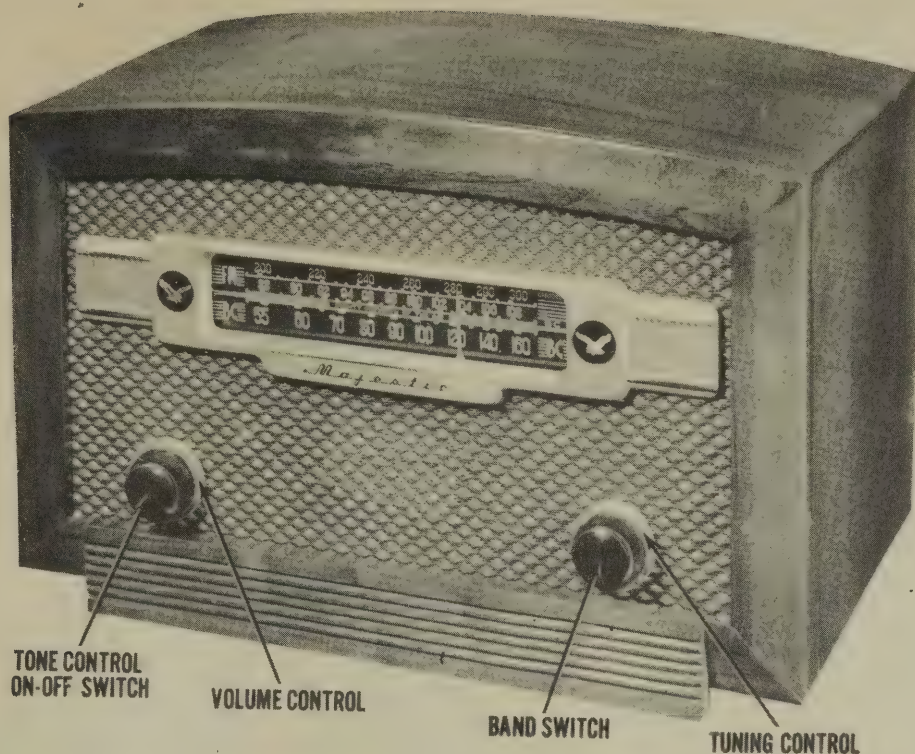
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute value is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MAJESTIC MODEL
8FM744 (Ch. 8B06D)



TONE CONTROL
ON-OFF SWITCH

VOLUME CONTROL

BAND SWITCH

TUNING CONTROL

TRADE NAME	Majestic, Model 8FM744 (Ch. 8B06D)		
MANUFACTURER	Majestic Radio & Tel. Corp, Elgin, Ill.		
TYPE SET	AC-DC Operated FM-AM Superheterodyne Receiver with Loop Ant.		
TUBES (EIGHT)	Types, 6BA6 RF Amp., 6BE6 Converter, 6SG7 1st IF Amp., 6SG7 2nd IF Amp., 6SH7 Limiter, 6S8GT Disc.-Det.-AVC-AF, 25L6GT Power Output, 25Z6GT Rectifier.		
POWER SUPPLY	110-120 Volts AC	RATING	.460 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1630KC	FREQ. MOD.	87.5-109MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.
Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .05 MFD.	High side to rear "AM" stator of Tuning Cap. Low side to chassis.	455KC	BC (counter-clockwise)	600KC	Across voice coil	A1,A2, A3,A4, A5,A6.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2 "	"	"	"	"	"	A7	Adjust for minimum output.
3 Loop	Loop	1500KC	"	1500KC	"	A8	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4 "	"	"	"	Tune for maximum output.	"	A9	Adjust for maximum output.
5 "	"	600KC	"	"	"	A10	Rock tuning cap. and adjust for maximum output. Repeat Steps 3, 4 & 5 until no further improvement can be made.

FOR FM ALIGNMENT SEE NEXT PAGE OF THIS FOLDER.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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DATE 12/47 SET #30 FOLDER #4720-15

MAJESTIC MODEL
8FM744 (Ch. 8B06D)

FM ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

(Connect synchronized sweep voltage from signal generator to horizontal amplifier.)

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST.	REMARKS
6 .05 MFD.	High side to Pin 4 (grid) of 6SG7 2nd IF Tube (4). Low side to chassis.	10.7MC (Freq. modulated at 60 μ , 300KC deviation.)	FM (clock-wise)	88MC	Vertical amplifier to Pin #3 of test socket (Point A). Ground to chassis.	A13,A14	Adjust for maximum amplitude and symmetry of pattern per Fig. 1.
7 .05 MFD.	High side to Pin 4 (grid) of 6SG7 1st IF tube (3). Low side to chassis.	"	"	"	"	A15,A16	"
8 .05 MFD.	High side to junction of wave trap and resistor 51 low side to chassis	"	"	"	"	A17,A18	"
9 .05 MFD.	"	"	"	"	Vertical amplifier to Pin #1 of test socket (Point B). Ground terminal to chassis	A11,A12	Adjust for maximum amplitude and symmetry with maximum straightness of diagonal line per Fig. 2.
10 300 Ω carbon res.	High side to one FM dipole terminal in series with 300 Ω . Low side to other dipole terminal.	106MC (Freq. modulated at 60 μ , 300KC deviation.)	"	106MC	Vertical amplifier to Point A. Ground to chassis	A19	Center the pattern in the center of the scope sweep line per Fig. 1.
11 "	"	"	"	"	"	A20	Adjust for maximum amplitude.
12 "	"	88MC (Freq. modulated at 60 μ , 300KC deviation.)	"	88MC	"	A21	Center the pattern in the center of the scope sweep line per Fig. 1.
13 "	"	"	"	"	"	A22,A23	Adjust for maximum amplitude.



FIGURE 1

FM ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6 .05 MFD.	High side to Pin 4 (grid) of 6SH7. Low side to chassis.	10.7MC (unmodulated)	FM (clock-wise)	88MC	DC probe to blank terminal of disc. trans. #89 (Point C). Common lead to chassis.	A11	Adjust for maximum deflection.
7 .05 MFD.	"	"	"	"	DC probe to point B. Common lead to chassis.	A12	Use a zero center scale VTVM if available. Adjust for zero reading.
8 .05 MFD.	High side to Pin 4 (grid) of 6SG7 2nd IF Tube #4. Low side to chassis.	"	"	"	DC probe to Point A. Common lead to chassis.	A13,A14	Adjust for maximum deflection.
9 .05 MFD.	High side to Pin 4 (grid) of 6SG7 1st IF Tube #3. Low side to chassis.	"	"	"	"	A15,A16	"
10 .05 MFD.	High side to junction of wave trap coil and resistor 51. Low side to chassis.	"	"	"	"	A17,A18	"
11 300 Ω car.res.	High side to one FM dipole terminal in series with 300 Ω . Low side to other dipole terminal.	106MC	"	106MC	"	A19	"
12 "	"	"	"	Tune for maximum deflection.	"	A20	"
13 "	"	88MC	"	88MC	"	A21	"
14 "	"	"	"	Tune for maximum deflection.	"	A22, A23	Adjust for maximum deflection. Repeat Steps 11, 12, 13 and 14 until no further improvement can be made.

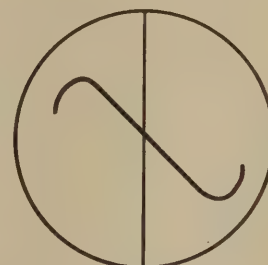
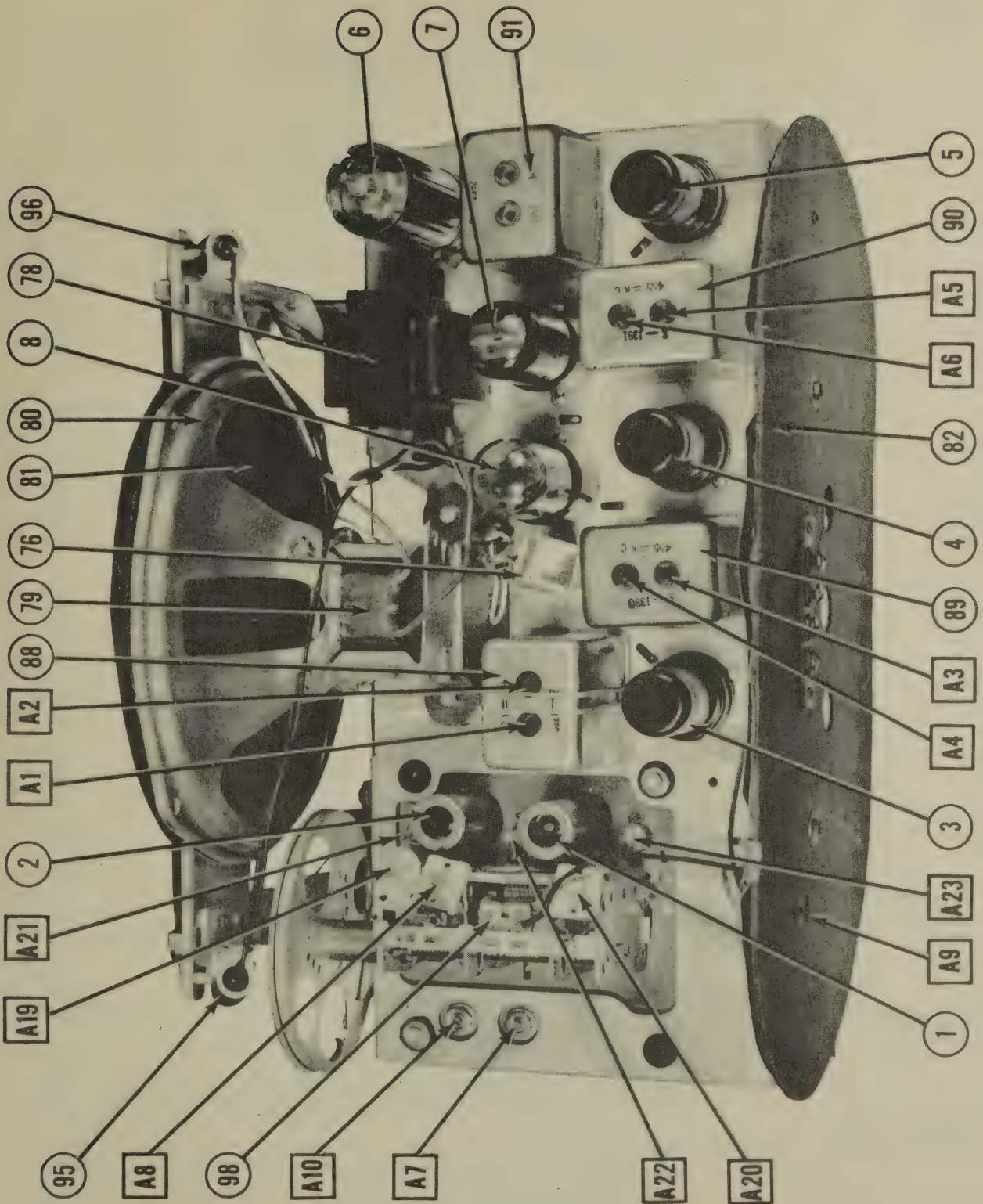


FIGURE 2



PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		MAJESTIC PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	6BA6	6BA6	7BK	Volume Control, tone control on switch. Dual unit with switch operated by concentric shaft.
2	Converter	6BE6	6BE6	7CH	
3	1st IF Amp.	6SQ7	6SQ7	8BK	
4	2nd IF Amp.	6SQ7	6SQ7	8BK	
5	Limiter	6SH7	6SH7	8BK	
6	Discrim. Det.	6SGGT	6SGGT	8CB	
7	Power Output	25L6GT	25L6GT	7AC	
8	Rectifier	25Z6GT	25Z6GT	7C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MAJESTIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
9	20	18-32	TC45	M-20-150	UT-201	Filter
10A	50	19-44	TC45	D58-5030-150	TA-530	" - Red
10B	150					" - Blue
11	100	016-8	TC2501	MH-100-12	UHC112	Cathode Bypass-Orange
12	.01	400	TP426	S-6-01	TC-15	Line Filter
13	.01	400	TP410	S-6-01	TC-11	Output Plate Bypass
14	.005	600	TP421	S-4-01	TC-11	Audio Coupling
15	.005	600	TP408	S-6-005	TC-25	Tone Comp.
16	.005	600	TP421	S-4-01	TC-11	Control Isolation
17	.002	600	TP405	S-6-002	TC-11	Tone Compensation
18	.01	400	TP421	S-4-01	TC-11	Audio Coupling
19	.01	400	TP421	S-4-01	TC-11	Limiter Plate Decoup.
20	.01	400	TP421	S-4-01	TC-11	RF Bypass Pwr. Supply
21	.01	400	TP421	S-4-01	TC-11	2nd IF Cathode Bypass
22	.01	400	TP421	S-4-01	TC-11	RF Bypass Pwr. Supply
23	.01	400	TP421	S-4-01	TC-11	" Filter
24	.01	400	TP421	S-4-01	TC-11	RF Bypass Pwr. Supply
25	.05	400	TP421	S-4-01	TC-15	AVC Filter
26	.01	200	TP408	S-6-005	TC-25	Ext. Ant. Isolation
27	.005	600	TC255	M-3-21	TC-25	Audio Coupling
28	1000	300	TC255	M-3-21	TC-25	Flt. Bypass
29	1000	300	TC255	M-3-21	TC-25	"
30	1000	300	TC255	M-3-21	TC-25	"
31	5000	500	TC255	M-3-21	TC-25	"
32	5000	500	TC255	M-3-21	TC-25	"
33	5000	500	TC255	M-3-21	TC-25	"
34	220	500	TC240	M-5-325	TC-25	RF Bypass Pwr. Supply
35	220	500	TC240	M-5-325	TC-25	AF Plate Bypass
36	1000	500	TC235	M-5-31	TC-31	Diode RF Filter
37	5000	500	TC235	M-5-31	TC-31	Limiter Screen Bypass
38	100	500	TC235	M-5-31	TC-31	Limiter Grid Filter
39	5000	500	TC240	M-5-325	TC-25	2nd IF Screen Bypass
40	5000	500	TC240	M-5-325	TC-25	Diode RF Filter
41	2200	500	TC240	M-5-325	TC-25	1st IF Screen Bypass
42	1000	300	TC235	M-5-31	TC-31	Fixed Pad.
43	47	500	TC235	M-5-31	TC-31	Osc. Grid
44	1000	300	TC235	M-5-31	TC-31	Conv. Screen Bypass
45	1000	300	TC235	M-5-31	TC-31	RF Coupling
46	1000	300	TC235	M-5-31	TC-31	RF Screen Bypass
47	47	500	TC235	M-5-31	TC-31	RF Cathode Bypass
48	100	500	TC235	M-5-31	TC-31	FM Dipole Coupling
49	100	500	TC235	M-5-31	TC-31	"
50	1000	300	TC235	M-5-31	TC-31	De-emphasis

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		RESIST-ANCE	MAJESTIC PART No.	MALLORY PART No.	
51	500K-2 Meg.	2 Meg.			Volume Control, tone control on switch. Dual unit with switch operated by concentric shaft.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		RESISTANCE	MAJESTIC PART No.	MALLORY PART No.	
52	68K	1	01-37	BW-2-68	Blue-Gray-Blk. RF Cathode
53	3300K	1	02-108	BTS-3300	Or.-Or.-Red RF Plate Load
54	10K	1	01-3	BW-2-10	Br.-Blk.-Blk. Parasitic Suppressor
55	22K	1	01-143	BTS-22K	Red-Red-Or. Oscillator Grid
56	2200K	1	01-101	BTS-2200	Red-Red-Red Converter Screen Dropping
57	470K	1	01-199	BTS-470K	Yl.-Vl.-Yl. AVC Network
58	47K	1	01-157	BTS-47K	Yl.-Vl.-Or. Conv. Grid
59	470K	1	01-199	BTS-470K	Red-Red-Or. Diode RF Filter
60	22K	1	01-143	BTS-22K	Yl.-Vl.-Yl. Diode Load
61	470K	1	01-199	BTS-470K	Red-Red-Grn. AVC Network
62	2.2 Meg.	1	01-227	BW-2-2.2 Meg.	Blue-Gray-Blk. 2nd IF Cathode
63	47K	1	01-37	BW-2-68	Or.-Or.-Red Limiter Screen Bleeder
64	47K	1	01-157	BTS-47K	Br.-Red-Or. Limiter Screen Dropping
65	3300K	1	02-108	BTS-3300	Yl.-Vl.-Yl. Series Test Jack
66	12K	1	02-132	BTS-12K	Yl.-Vl.-Yl. Limiter Plate Decoupling
67	470K	1	01-199	BTS-470K	Br.-Blk.-Blue AF Grid
68	47K	1	01-157	BTS-47K	Yl.-Vl.-Yl. Output Grid
69	470K	1	01-199	BTS-470K	Br.-Grn.-Br. Output Cathode
70	10 Meg.	1	01-255	BTS-10 Meg.	Red-Red-Blk. Surge Limiter
71	12K	1	01-132	BTS-12K	Line Dropping
72	470K	1	01-199	BTS-470K	Pilot Light Shunt
73	150K	1	02-52	BW-1-150	AB-50
74	220K	1	02-59	BW-1-220	AB-50
75	22K	1	9-332	AB-50	AB-50
76A	50K	1	01-157	BTS-47K	BTS-47K
77	47K	1	01-157	BTS-47K	BTS-47K

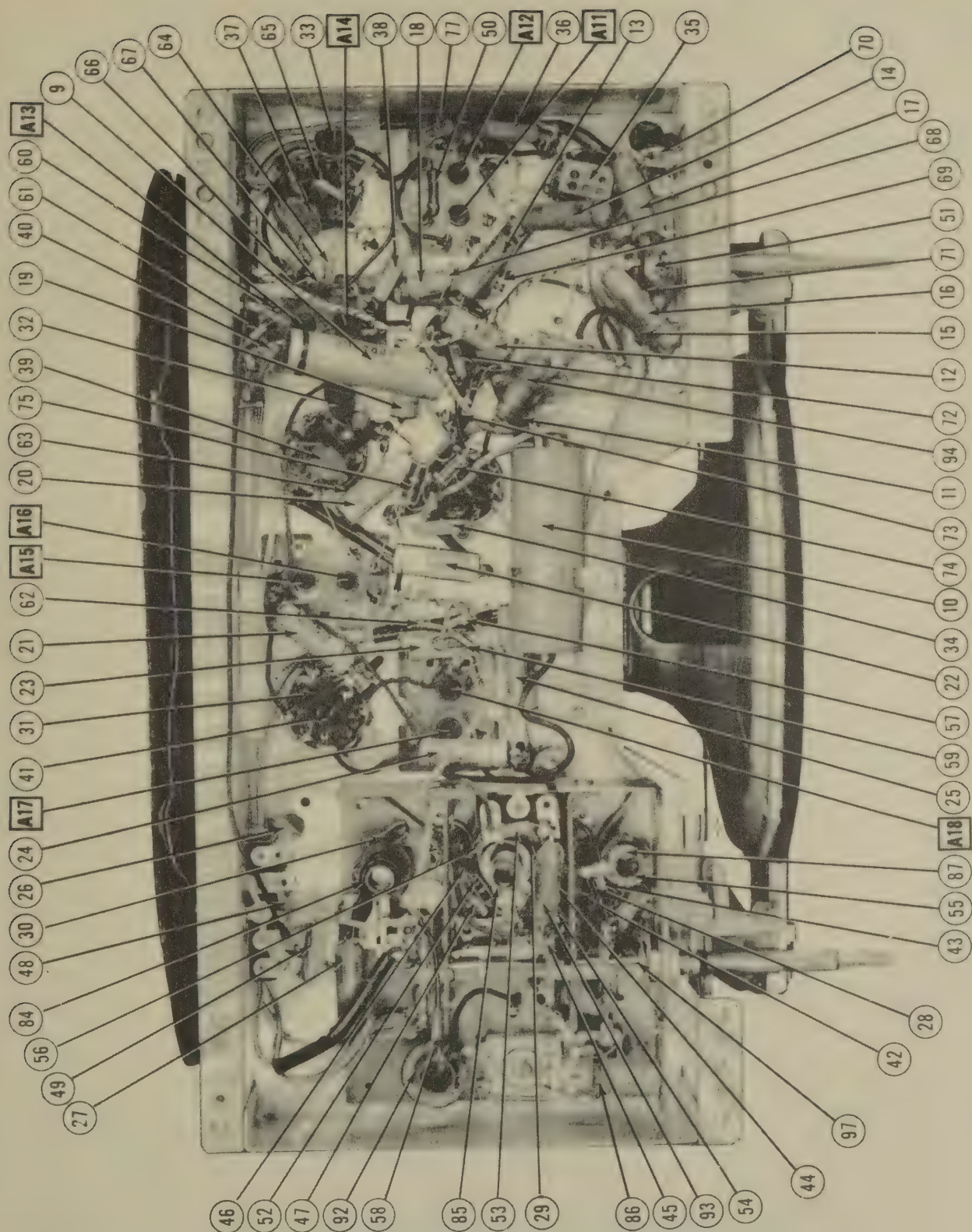
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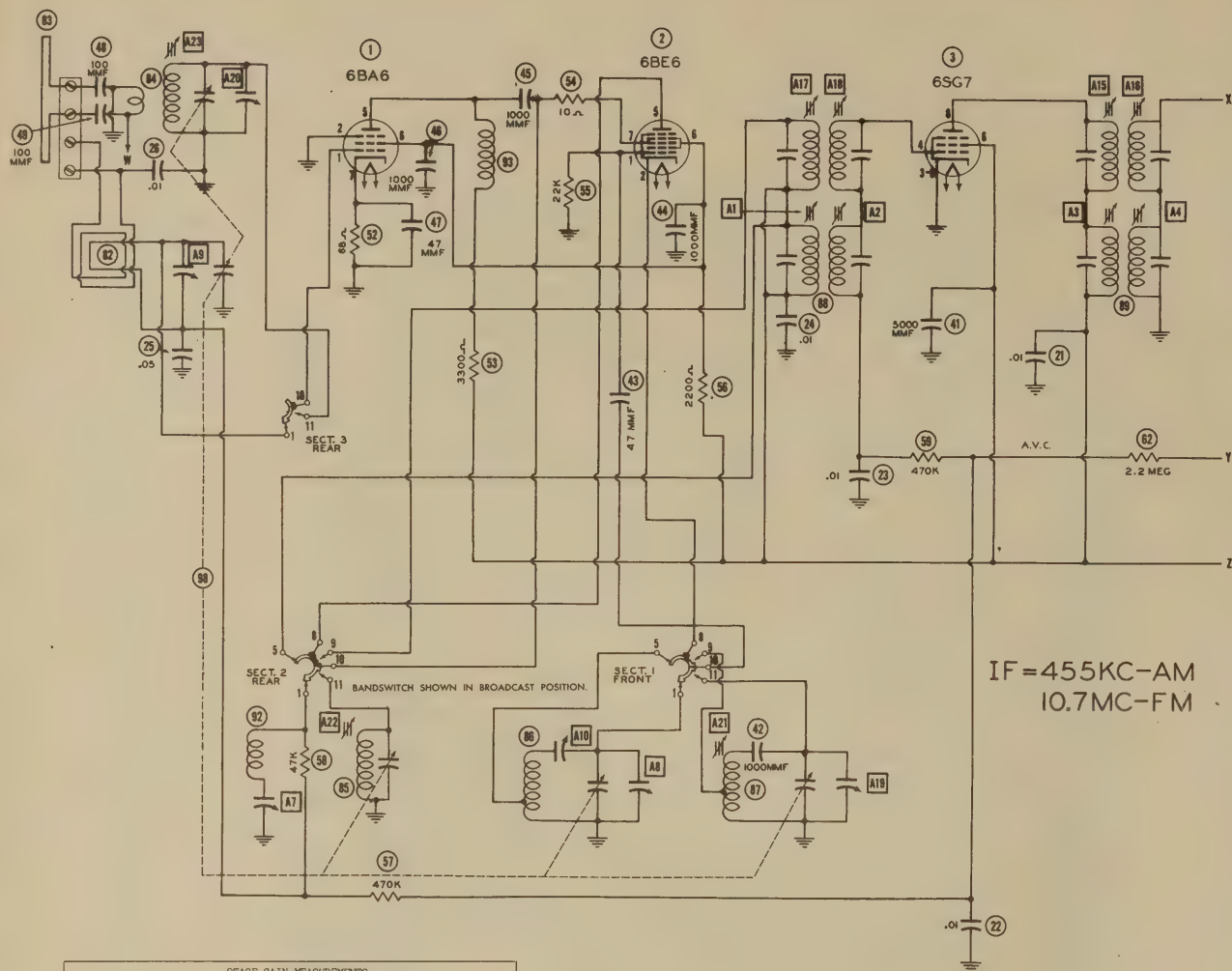
ITEM NO.	TOTAL DIRECT CURRENT	RATINGS	REPLACEMENT DATA			INSTALLATION NOTES
			INDUCTANCE (10 CURRENT 1000 A)	MAJESTIC PART No.	STANCOR PART No.	
78	.058A	100K	3.4 Henries	2-32	C-1080	*Drill one new mounting hole.

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		IMPEDANCE	DC RES.	MAJESTIC PART No.	
79	2100/3.2K	220K	.6K	Part of 22-42	A-2928

PARTS LIST CONTINUED ON LAST PAGE





IF=455KC-AM
10.7MC-FM

STAGE GAIN MEASUREMENTS

ANT. TO RF GRID	8X	600KC
RF GRID TO CONV. GRID	5X	600KC
CONV. GAIN	10X	IN 600KC OUT 455KC
1st IF TRANS.	.5X	455KC
1st IF TUBE	30X	455KC
2nd IF TRANS.	.45X	455KC
2nd IF TUBE	100X	455KC
3rd IF TRANS.	.6X	455KC
AUDIO	35X	400~
OUTPUT	18X	400~

VOLTAGE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	-.2VDC	0V.	24VAC	30VAC	85VDC	85VDC	.8VDC	-
2	6BE6	-.7VDC	0V.	36VAC	30VAC	105VDC	85VDC	-.2VDC	-
3	6SG7	0V.	18VAC	0V.	-.6VDC	0V.	105VDC	24VAC	105VDC
4	6SG7	0V.	12VAC	.7VDC	0V.	.7VDC	105VDC	18VAC	105VDC
5	6SG7	0V.	6VAC	0V.	-.4VDC	0V.	22VDC	12VAC	85VDC
6	6SG7	-.4VDC	0V.	-.4VDC	-.5VDC	-.1VDC	53VDC	0V.	6VAC
7	2SL6GT	0V.	60VAC	100VDC	105VDC	0V.	105VDC	36VAC	7.2VDC
8	2SL6GT	100VDC	60VAC	117VAC	105VDC	117VAC	110VDC	85VAC	115VDC

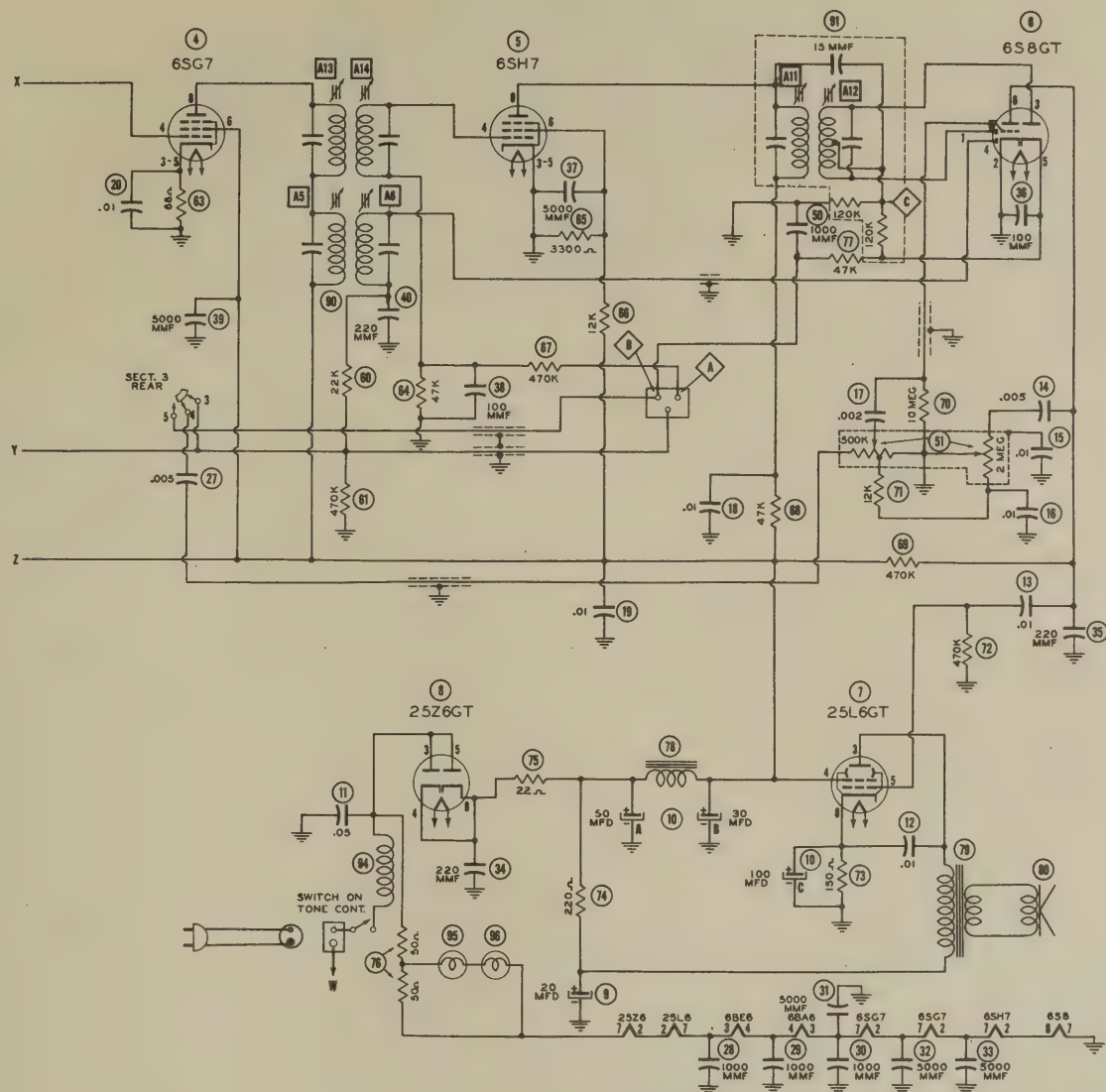
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4720-15

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

RESISTANCE READINGS

Num	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	4 Meg.	0Ω	14Ω	18Ω	16KΩ	16KΩ	68Ω	-
2	6BE6	22KΩ	.6Ω	22Ω	18Ω	16KΩ	18KΩ	4 Meg.	-
3	6SQ7	0Ω	11Ω	0Ω	4 Meg.	0Ω	16KΩ	14Ω	16KΩ
4	6SQ7	0Ω	6Ω	65Ω	6.5Ω	65Ω	16KΩ	11Ω	16KΩ
5	6SH7	0Ω	3Ω	0Ω	47KΩ	0Ω	3.3KΩ	6Ω	62KΩ
6	6SB7	120KΩ	0Ω	120KΩ	480KΩ	270KΩ	490KΩ	0Ω	3Ω
7	25L6GT	0Ω	31Ω	16KΩ	16KΩ	500KΩ	16KΩ	22Ω	150Ω
8	25Z6GT	16KΩ	31Ω	115Ω	16KΩ	115Ω	16KΩ	41Ω	16KΩ

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

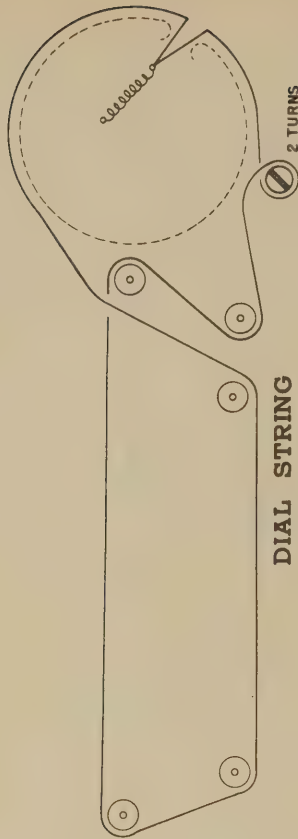
4720-15

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	MAJESTIC PART No.	JENSEN PART No.	
80	PM	3.22	22-42	ST-115 Mod. PB-V	
81	CONE DIA. 7-3/8"	VC DIA. 1/2"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER		



R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	MAJESTIC PART No.	WEISSNER PART No.
82	Loop Ant.	.22	1.22	S-1400	
83	FM Ant. Coil	.02	.02	S-1407	
84	FM Ant. Coil	.02	.02	S-1408	
85	FM RF Coil	.02	.02	S-1411	
86	AM Osc. Coil	.02	.02	S-1409	
87	FM Osc. Coil	.02	.02	S-1389	
88A	AM Input IF	6.52	6.52	S-1390	
88B	FM 1st IF	.22	.22	S-1391	
89A	AM Inter IF	6.52	6.52	S-1392	
89B	FM 2nd IF	.22	.22	S-1410	
90A	AM Output IF	6.52	6.52	S-1384	
91	Disc. Trans.	.22	.22	S-1385	
92	Wave Trap	.22	.22		
93	RF Choke	.22	.22		
94	RF Choke	.12	.12		

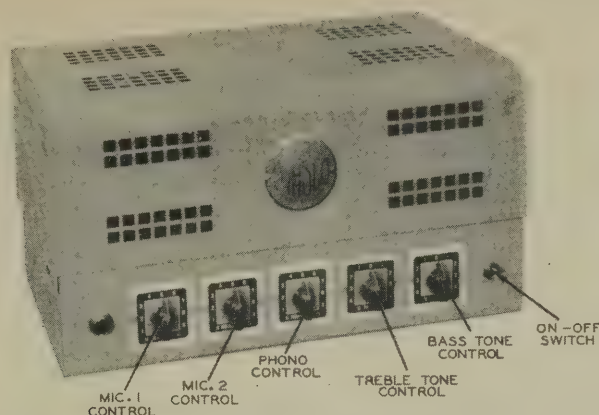
Items 88A & 88B in same can.
Items 89A & 89B in same can.
Items 90A & 90B in same can.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	MAJESTIC PART No.	
95	Bayonet	6-8"	0.15	Brown	26-2	Type "47
96					26-2	

MISCELLANEOUS

ITEM No.	PART NAME	MAJESTIC PART No.	NOTES
97	Band Switch	11-71 11-71-1 11-71-2 11-71-3	Shaft Wafer Sect. 1 " 2 " 3
98	Tuning Cap.	7-25	AM (17-500MHZ, 17-500MHZ)
A7	Trimmer	8-63	Wave Trap Adj.
A9	"	8-35	A8, A20
A10	Padder	8-59	RC Ant. Adj.
A19	Trimmer	8-65	RC Osc. Adj.
	Dial Pointer	8-38	FM Ant. Adj.
	Dial Scale	135-21	
		117-81	



TRADE NAME Masco, Model MA-50
MANUFACTURER Mark Simpson Mfg. Co., Inc., 32-28 49th St., Long Island City 3, N.Y.
TYPE SET AC Operated 3 Channel 10 Tube Amplifier
TUBES (TEN) Types, (2) 7C7 Mic. Amp., 7F7 AF-Amp., 7N7 AF Amp. Phase Inv., (4) 6L6GA Power Output, (2) 5U4G Rectifier.
POWER SUPPLY 110-120 Volts AC **RATING** 1.8 Amp. @ 117V AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7C7	24VDC*	20VDC	34VDC	0V.	0V.	-5VDC	0V.	24VDC*
2	7C7	24VDC*	20VDC	32VDC	0V.	0V.	-55VDC	0V.	24VDC*
3	7F7	24VDC*	2.3VDC	200VDC	0V.	0V.	200VDC	2.3VDC	24VDC*
4	7N7	24VDC*	5VDC	125VDC	0V.	0V.	135VDC	5VDC	24VDC*
5	6L6GA	0V.	24VDC*	410VDC	310VDC	0V.	125VDC	24VDC*	24VDC
6	6L6GA	0V.	24VDC*	410VDC	310VDC	0V.	0V.	24VDC*	24VDC
7	6L6GA	0V.	24VDC*	410VDC	310VDC	0V.	0V.	24VDC*	24VDC
8	6L6GA	0V.	24VDC*	410VDC	310VDC	0V.	0V.	24VDC*	24VDC
9	5U4G	0V.	420VDC	0V.	350VAC	0V.	350VAC	0V.	420VDC
10	5U4G	0V.	420VDC	0V.	350VAC	0V.	350VAC	0V.	420VDC

*6.2V AC BETWEEN FILAMENT PINS.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7C7	100Ω	420KΩ	1.1 Meg.	0Ω	0Ω	15 Meg.	0Ω	100Ω
2	7C7	100Ω	420KΩ	1.1 Meg.	0Ω	0Ω	15 Meg.	0Ω	100Ω
3	7F7	100Ω	1KΩ	160KΩ	250KΩ	0Ω	160KΩ	1KΩ	100Ω
4	7N7	100Ω	920Ω	160KΩ	11KΩ	25KΩ	160KΩ	920Ω	100Ω
5	6L6GA	INF.	100Ω	100KΩ	100KΩ	110KΩ	160KΩ	100Ω	100Ω
6	6L6GA	INF.	100Ω	100KΩ	100KΩ	110KΩ	INF.	100Ω	100Ω
7	6L6GA	INF.	100Ω	100KΩ	100KΩ	100KΩ	INF.	100Ω	100Ω
8	6L6GA	INF.	100Ω	100KΩ	100KΩ	100KΩ	INF.	100Ω	100Ω
9	5U4G	INF.	100KΩ	INF.	30Ω	INF.	30Ω	INF.	100KΩ
10	5U4G	INF.	100KΩ	INF.	30Ω	INF.	30Ω	INF.	100KΩ

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 6 - Set volume controls at minimum and connect proper output load.

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PARTS LIST AND DESCRIPTIONS

MASCO
MODEL MA-50

CHASSIS—TOP VIEW

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		MASCO PART No.	STANDARD REPLACEMENT	
1	Mic. Amp.	7C7	7C7	
2	Mic. Amp.	7C7	7C7	
3	AF Amp., Phase	7N7	7N7	
4	Inv. Output	6L6GA	6L6GA	
5	"	6L6GA	6L6GA	
6	"	6L6GA	6L6GA	
7	"	6L6GA	6L6GA	
8	"	6L6GA	6L6GA	
9	Rectifier	5U4G	5U4G	
10		5U4G	5U4G	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

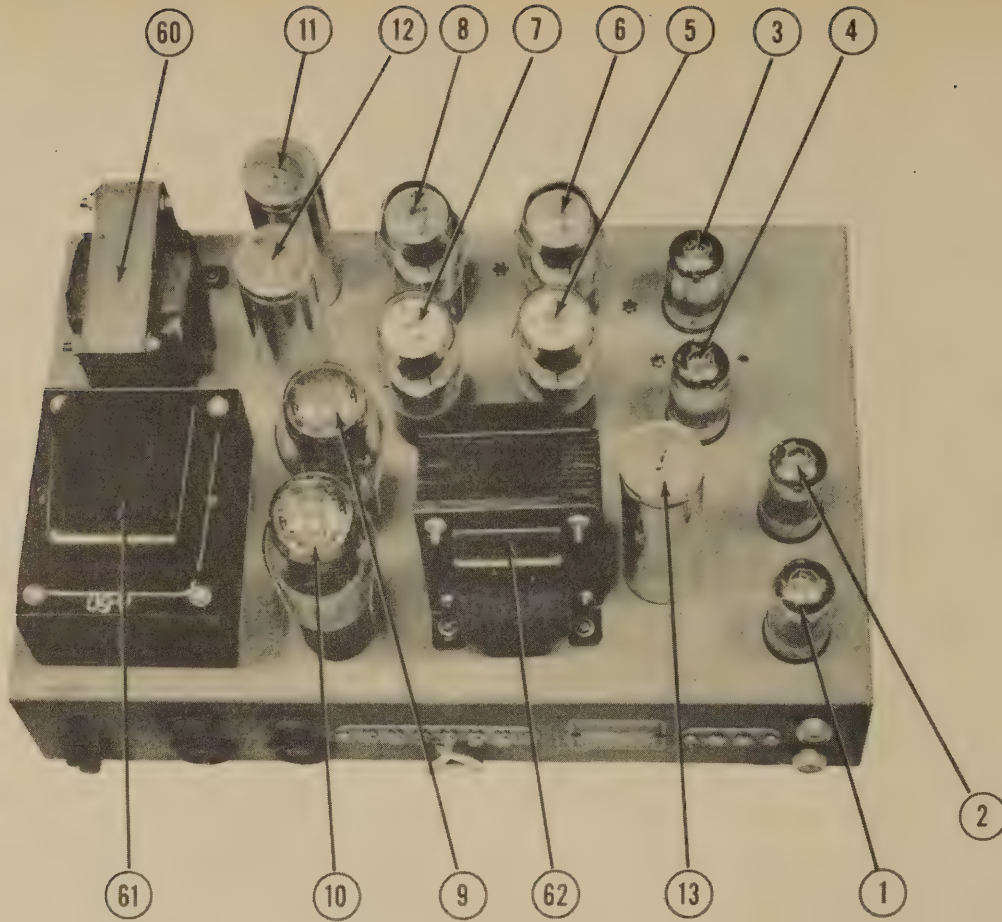
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MASCO PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
11	8 600	HS593	D-8-600	AP-86	AP-86	Filter
12	8 600	HS593	D-8-600	AP-86	AP-86	"
13	8 600	HS593	D-8-600	AP-86	AP-86	"
14	8 450	TC71	M-8-450	UT-8	UT-8	"
15	8 450	2N518	M-2X8-450	UT-88	UT-88	"
16	10 50	TC32	M-10-50	TA-510	TA-510	"
17	10 50	TC32	M-10-50	TA-510	TA-510	"
18	10 600	TP418	TPM-6-1	TC-1	TC-1	"
19	10 600	TP418	TPM-6-1	TC-1	TC-1	"
20	10 600	TP418	TPM-6-1	TC-1	TC-1	"
21	10 600	TP418	TPM-6-1	TC-1	TC-1	"
22	10 600	TP418	TPM-6-1	TC-1	TC-1	"
23	10 400	TP421	S-4-01	TC-11	TC-11	"
24	10 400	TP421	S-4-01	TC-11	TC-11	"
25	10 600	TP418	TPM-6-1	TC-1	TC-1	"
26	10 600	TP418	TPM-6-1	TC-1	TC-1	"
27	10 600	TP418	TPM-6-1	TC-1	TC-1	"
28	10 600	TP418	TPM-6-1	TC-1	TC-1	"
29	10 600	TP418	TPM-6-1	TC-1	TC-1	"
30	10 600	TP418	TPM-6-1	TC-1	TC-1	"

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MASCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
31A	500KQ	Not Req.	MP48	D13-133	M-60-Z	1st Mic. Amp. Volume Control
32A	500KQ	Not Req.	MP48	D13-133	M-60-Z	Attach to 31A per instructions
33A	500KQ	Not Req.	MP48	D13-133	M-60-Z	1st Mic. Amp. Volume Control
34A	500KQ	Not Req.	MP48	D13-133	M-60-Z	Attach to 32A per instructions
35A	500KQ	Not Req.	MP48	D13-133	M-60-Z	Phono Volume Control
						Treble Control
						Attach 33A per instructions
						Bass Control
						Attach to 34A per instructions
						Attach to 35A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		MASCO PART No.	IRC PART No.	
36	15 Meg.		BTS-15 Meg.	Br.-Grn.-Blue 1st Mic. Amp. Grid
37	15 Meg.		BTS-15 Meg.	Br.-Grn.-Blue 2nd Mic. Amp. Grid
38	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. 1st Mic. Amp. Screen Dropping
39	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. 2nd Mic. Amp. Screen Dropping
40	270KQ		BTS-270K	Red-Vi.-Vi. 1st Mic. Amp. Plate Load
41	270KQ		BTS-270K	Red-Vi.-Vi. 2nd Mic. Amp.
42	47KQ		BTS-47K	Yl.-Vi.-Or. Voltage Dropping
43	100KQ		BTS-100K	Br.-Blk.-Red AF Cathode



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	MASCO PART No.	IRC PART No.		
44	47K Ω	$\frac{1}{2}$	BTS-47K		Yl.-Vi.-Or. AF Plate Load	
45	12K Ω	$\frac{1}{2}$	BTS-12K		Br.-Red-Or. Filter	
46	270K Ω	$\frac{1}{2}$	BTS-270K		Red-Vi.-Yl. Tone Compensation	
47	25K Ω	$\frac{1}{2}$	BTS-27K		Red-Vi.-Yl. AF Grid	
48	1000 Ω	$\frac{1}{2}$	BTS-1000		Br.-Blk.-Red AF-Phase Inverter Cathode	
49	3 Meg.	$\frac{1}{2}$	BTS-3.3 Meg.		Or.-Blk.-Grn. Feedback	
50	47K Ω	$\frac{1}{2}$	BTS-47K		Yl.-Vi.-Or. AF Plate Load	
51	47K Ω	$\frac{1}{2}$	BTS-47K		Yl.-Vi.-Or. Phase Inverter Plate Load	
52	10K Ω	$\frac{1}{2}$	BTS-10K		Br.-Blk.-Or. Phase Inverter Grid	
53	100K Ω	$\frac{1}{2}$	BTS-100K		Br.-Blk.-Yl. Output Grid	
54	100K Ω	$\frac{1}{2}$	BTS-100K		Br.-Blk.-Yl. Parasitic Suppressor	
55	150 Ω	$\frac{1}{2}$	BW- $\frac{1}{2}$ -150		Br.-Grn.-Br. Output Cathode-See Note	
56	150 Ω	$\frac{1}{2}$	BW- $\frac{1}{2}$ -150		Br.-Grn.-Br. Output Cathode-See Note	
57	100 Ω	$\frac{1}{2}$	DG-100		Br.-Red-Or. Filter	
58	12K Ω	$\frac{1}{2}$	BTS-12K		Br.-Red-Or. Filter	
59	5000 Ω	$\frac{1}{2}$	AB-5000			

Note-Some models use 2-200 Ω 10W resistor in parallel.

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES	
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
60	.235A	68 Ω	C-575	C-1703*	T20C56*	*C-3196*

*Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.
61	117V AC	700V CT	4.8V AC	A-50		T22R34*

*Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		
	IMPEDANCE	DC RES.	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
62	4400 Ω 2 Ω 4 Ω 8 Ω 15 Ω 500 Ω	.22 85 Ω .25 Ω .4 Ω .5 Ω 16 Ω	0-50	A-3802*	T22S78	*Drill new mounting holes.

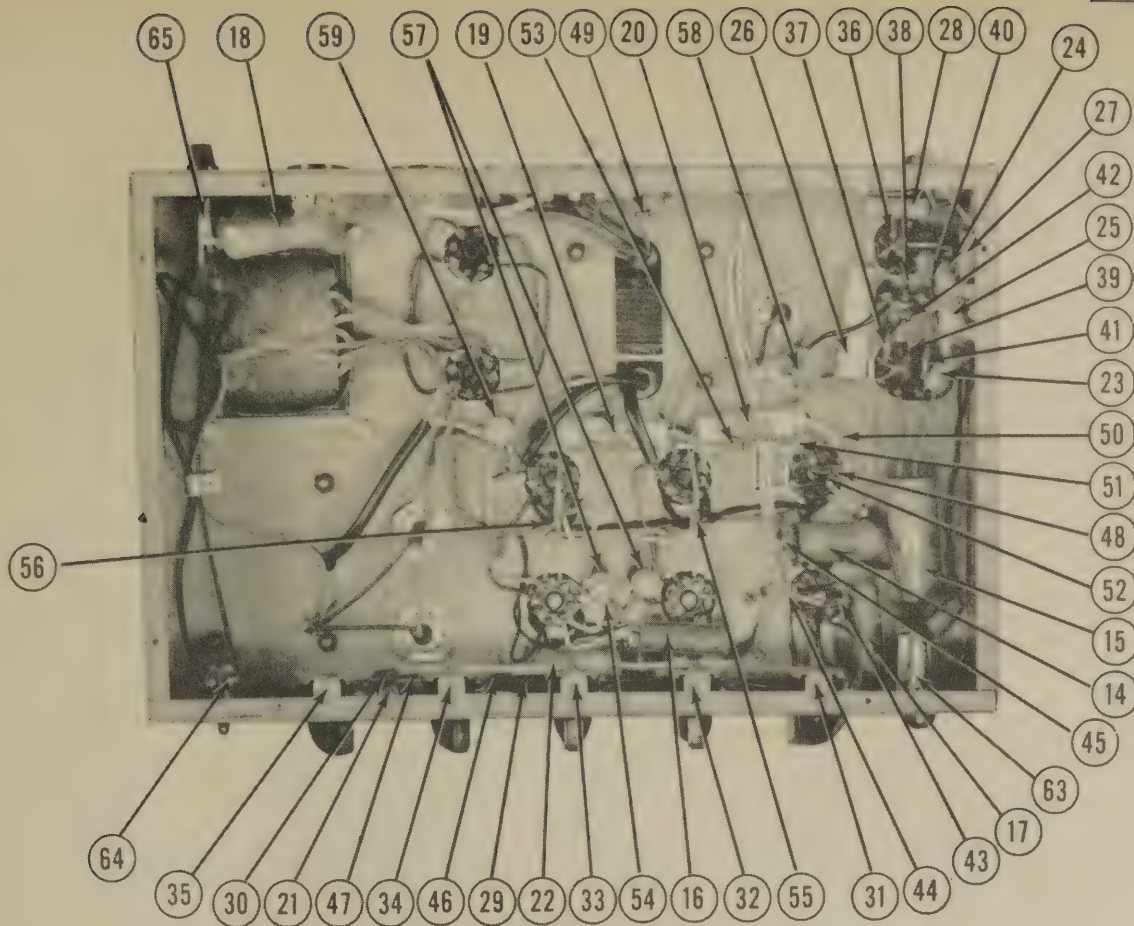
DIAL LIGHT

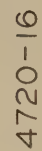
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	MASCO PART No.	
63	Bayonet	6-8	0.15	Brown		Type 47

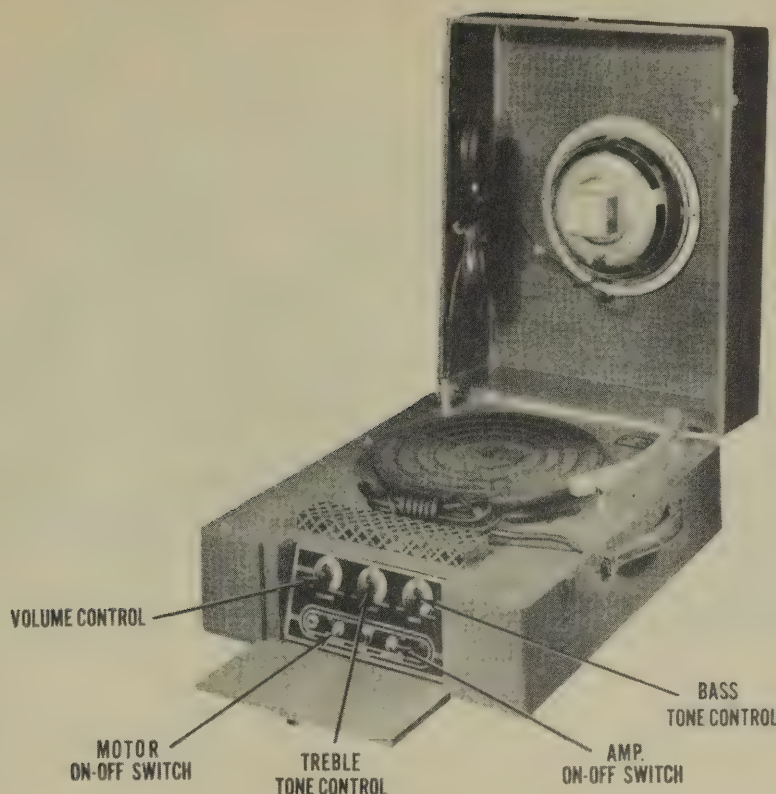
MISCELLANEOUS

ITEM No.	PART NAME	MASCO PART No.	NOTES
64	Switch		On-Off
65	Fuse		3 AMP.

CHASSIS—BOTTOM VIEW







MASCO MODEL TP-16A

TRADE NAME	Masco, Model TP-16A
MANUFACTURER	Mark Simpson Mfg. Co., Inc., 32-28 49th St., Long Island City, 3, N.Y.
TYPE SET	AC Operated Phono with 4 Tube Amplifier
TUBES (FOUR)	Types, 6SL7GT AF Amp., 6SL7GT AF Amp., 6V6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	110-120 Volts AC
	RATING .370 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SL7GT	0V.	130VDC	2VDC	0V.	70VDC	0V.	3.3VAC	3.3VAC
2	6SL7GT	0V.	100VDC	1VDC	0V.	100VDC	1VDC	3.3VAC	3.3VAC
3	6V6GT	0V.	3.3VAC	235VDC	255VDC	-10VDC	-13VDC	3.3VAC	0V.
4	6Y5GT	0V.	3.3VAC	240VAC	-15VDC	240VAC	0V.	3.3VAC	255VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5 -	Pin 6	Pin 7	Pin 8
1	6SL7GT	0Ω	200KΩ	5KΩ	6 Meg.	250KΩ	0Ω	12Ω	12Ω
2	6SL7GT	270KΩ	160KΩ	1KΩ	25KΩ	160KΩ	1KΩ	12Ω	12Ω
3	6V6GT	0Ω	12Ω	80KΩ	80KΩ	500KΩ	250KΩ	12Ω	0Ω
4	6X5GT	INF.	12Ω	415Ω	260Ω	420Ω	0Ω	12Ω	80KΩ

NOTE-FILAMENT READINGS MAY VARY ACCORDING TO ADJUSTMENT OF HUM BALANCER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 6 - Set all controls at minimum and connect proper output load.

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DATE 12/47 SET #30 FOLDER #4720-17

PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

MASCO MODEL
TP-16A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		MASCO PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	AF Amp.	6SL7GT	6SL7GT	8BD	
2	Power Output	6SL7GT	6SL7GT	8BD	
3	Rectifier	6XSGT	6XSGT	7AC	
4				6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MASCO PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
5	16	TC75	TC32	M-16-450	UT-16	BR1645
6	16	TC75	TC32	M-16-450	UT-16	BR1645
7A	8	2N518	TP421	M-2X8-450	UT-88	E28845
8	10		TP421			
9	10		TP421			
10	.01		TP421			
11	.005		TP421			
12	.01		TP421			
13	.01		TP421			
14	.005		TP421			
15	.01		TP421			
16	.01		TP421			
17	.01		TP421			

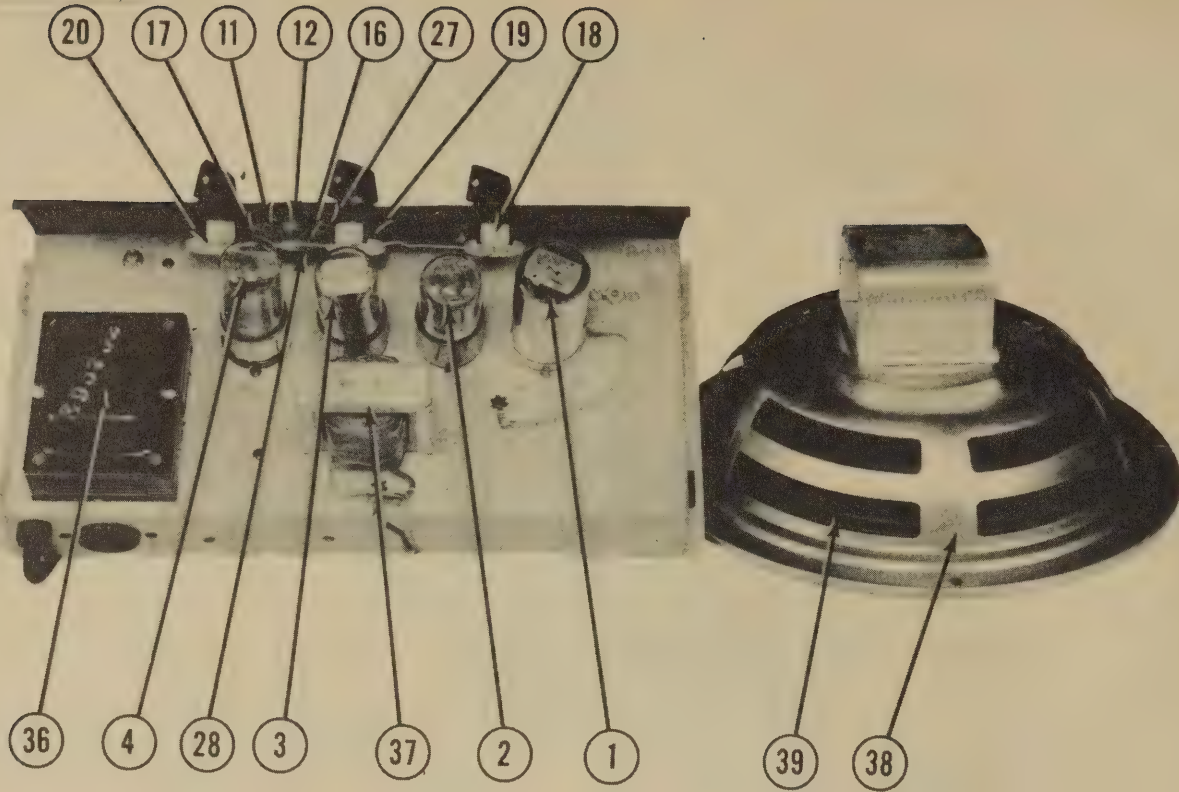
CONTROLS

ITEM No.	RATING RESIST- ANCE	REPLACEMENT DATA				INSTALLATION NOTES
		MASCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	500KΩ		MR49	D13-133	M-60-Z	Volume Control
18B	500KΩ		MR49	D13-133	M-60-Z	Attach to 18A per instructions
19A	500KΩ		MR49	D13-133	M-60-Z	Treble Control
19B	500KΩ		MR49	D13-133	M-60-Z	Attach to 19A per instructions
20A	500KΩ		MR49	D13-133	M-60-Z	Bass Control
20B	500KΩ		MR49	D13-133	M-60-Z	Attach to 20A per instructions
21	50Ω		C50P	W-50#	43-200#	Hum Balance

#Ground center terminal.

RESISTORS

ITEM No.	RATING RESISTANCE	REPLACEMENT DATA			IDENTIFICATION CODES
		MASCO PART No.	MALLORY PART No.	IRC PART No.	
22	5.6 Meg.			BTS-5.6 Meg	Grn.-Blue-Grn. Mic. Amp. Grid
23	100KΩ			BTS-100K	Br.-Blk.-Yl. Mic. Amp. Plate Load
24	500KΩ			BTS-4700	Grn.-Blk.-Yl. Red 1st AF Cathode
25	100KΩ			BTS-100K	Br.-Blk.-Yl. 1st AF Plate Load
26	47KΩ			BTS-47K	Yl.-Vi.-Or. Decoupling
27	270KΩ			BTS-270K	Red-Vi.-Yl. Tone Compensation
28	27KΩ			BTS-27K	Red-Vi.-Or. Decoupling
29	100KΩ			BTS-100K	Br.-Blk.-Yl. 2nd AF Cathode
30	100KΩ			BTS-100K	Br.-Blk.-Yl. 2nd AF Plate Load
31	470KΩ			BTS-470K	Yl.-Vi.-Yl. Feedback
32	270KΩ			BTS-270K	Red-Vi.-Yl. Output Grid
33	27KΩ			BTS-27K	Red-Vi.-Or. Decoupling
34	270KΩ			BTS-270K	Red-Vi.-Yl. Bias Network



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (10 CURRENT 1000-0)	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.	
35	.06A	260Ω	2.2 Henries	C-165	C-1708*	T20C52*	*Drill one new mounting hole.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA			MERIT PART No.
	PRI.	SEC. 1	SEC. 2	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.	
36	117V AC 480V CT ③ .37A ② .06A	6.5V AC ③ 2.0A	SEC. 3	A-6D	P-6119†	T22R02†	P-2951†

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	SEC.	MASCO PART No.	THORDARSON PART No.	MERIT PART No.	
37	8400Ω	5.0Ω	440Ω	0-6S	A-3924	T22S88	* Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	SEC.	MASCO PART No.	JENSEN PART No.	THORDARSON PART No.	
38	PI	5.0Ω			ST-120		
39	9-3/4"	VC DIA.	1"		Mod. P10-S		

NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MASCO PART No.	THORDARSON PART No.	
40	Bayonet	6-8	0.15	Brown			Type 47

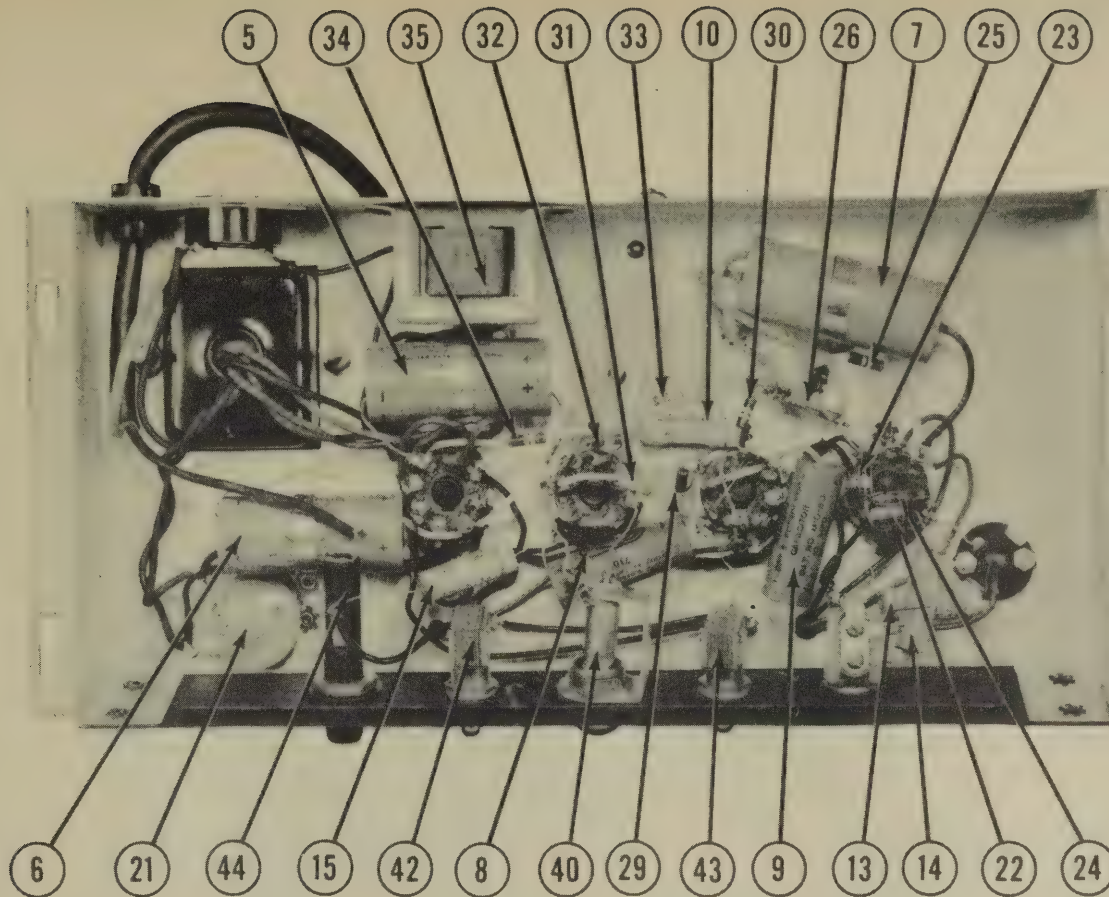
PHONO CARTRIDGE

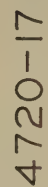
ITEM No.	REPLACEMENT DATA		REMARKS
	MASCO PART No.	ASTATIC PART No.	
41		QT-11	

MISCELLANEOUS

ITEM No.	PART NAME	MASCO PART No.	NOTES
42	Switch		On-Off (SPST)
43	Switch		Phono Motor (SPST)
44	Fuse		2 Amp.

CHASSIS—BOTTOM VIEW







MINERVA MODEL 702H

TRADE NAME Minerva, Models 702H, 702H-1 MANUFACTURER Minerva Corp. of America, 238 William St., New York, N.Y. TYPE SET AC-DC Operated Superheterodyne with Loop Antenna TUBES (SIX) Types, 12SK7GT RF Amp., 12SA7 Converter, 12SK7GT RF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.						
POWER SUPPLY 110-120 Volts AC-DC TUNING RANGE—BROADCAST 540-1620KC RATING .230 Amp. @ 117V AC						
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT To set pointer turn tuning cap. fully closed and set pointer 1-13/16" from left end of dial back plate. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to Pin 8 (grid) of 12SK7. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
2 200MMFD	High side to ext. ant. lead. Low side to chassis.	1400KC	6-13/16" from left end of dial backplate.	"	A5	Adjust for maximum output.
3 200MMFD	"	"	Tune for maximum output.	"	A6	" " " " "

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PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MINERVA PART No.	STANDARD REPLACEMENT		
1	RF Amp.	128K7GT	128K7GT	8N	
2	Converter	128A7	128A7	8R	
3	IF Amp.	128K7GT	128K7GT	8N	
4	Det.-AVC-AF	128Q7GT	128Q7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MINERVA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	40		2N511	DSB-2x40-150	TA-440	Filter - Red
B	40					"
8	40	TC48	TC48	M-40-150	UT-401	BR4015
9	.05	TP426	TP426	TPH-4-05	TC-15	DT4S5
10	.01	TP421	TP421	S-4-01	TC-11	DT4S1
11	.01	TP421	TP421	S-4-01	TC-11	DT4S1
12	.005	TP408	TP408	S-6-005	TC-25	DT6D5
13	.005	TP426	TP426	S-4-01	TC-15	DT4S5
14	.01	TP421	TP421	S-4-01	TC-11	DT4S1
15	300	MO241	MO241	MO 5-33	1FM-33	SW5T3
16	300	MO241	MO241	MO 5-33	1FM-33	SW5T3
17	300	MO241	MO241	MO 5-33	1FM-33	SW5T3
18	300	MO241	MO241	MO 5-33	1FM-33	SW5T3
19	10			MO 5-41	1FM-41	SW5Q1

Note-Not used in Model 702H-1.

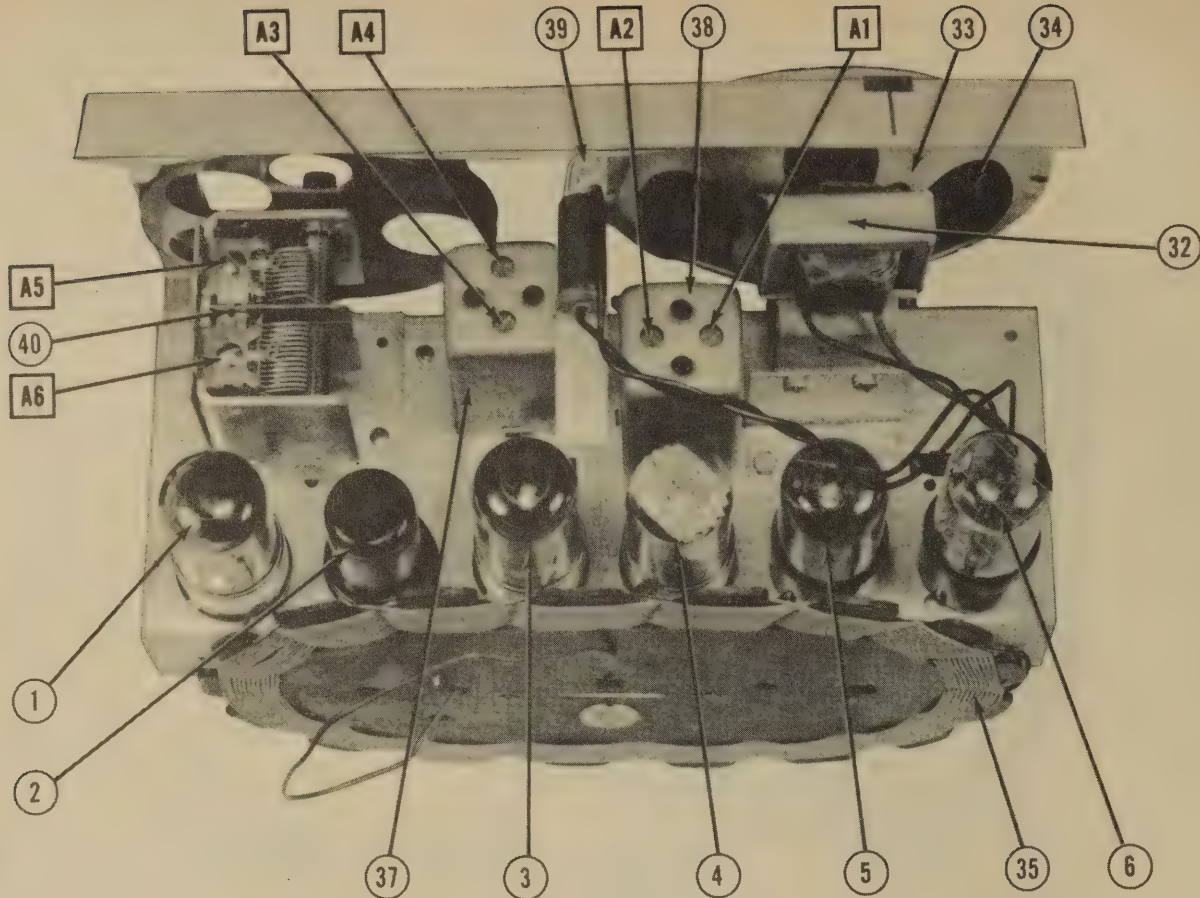
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MINERVA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
19A	500KQ		MR50	D11-133	M-59-S	Volume Control
B	500KQ		Not Req.	A	Not Req.	Attach to 19A per instructions
C	Switch		M26	41	SW-A	"
20A	500KQ		MR48	D13-133	M-60-Z	Tone Control - See Note
B	500KQ		Not Req.	A	Not Req.	Attach to 20A per instructions

Note-Not used in Model 702H-1.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		MINERVA PART No.	MALLORY PART No.	IRC PART No.	
21	4700Q				Y1-V1-Red RF Plate Load
22	100KQ		BTS-4700		Br.-Blk.-I1. Converter Grid
23	470Q		BTS-470		Y1-V1-Br. Converter Cathode
24	20KQ		BTS-22K		Red-Blk.-Or. Oscillator Grid
25	2.2 Meg.		BTS-2.2 Meg.		Red-Red-Grn. AVC Network
26	10 Meg.		BTS-10 Meg.		Br.-Blk.-Blue AF Grid
27	330KQ		BTS-330K		Or.-Or.-Y1. AF Plate Load
28	470KQ		BTS-470K		Y1-V1-Y1. Output Grid
29	220Q		BW-2-220		Red-Red-Br. Output Cathode
30	1000Q		BTA-1000		Br.-Blk.-Red Filter
31	220Q		BW-2-220		Red-Red-Br.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.		MINERVA PART No.	STANCOR PART No.	MERIT PART No.	
32	2300Ω	3.5Ω	160Ω	A-3976*	T22545*	A-2928*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		MINERVA PART No.	JENSEN PART No.	
33	FIELD PM	15-9	SP-105T Mod. PS-X	†Drill and tap magnet frame.
34	CONE DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

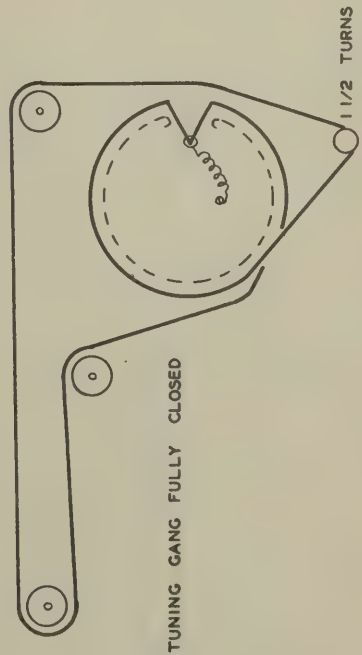
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	MINERVA PART No.	MEISSNER PART No.
35	Loop Ant.	.2Ω	1.5Ω		
36	Osc. Coil	34Ω	4Ω	14-1040	
37	Input IF	34Ω	34Ω	16-6658	
38	Output IF	34Ω	34Ω	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	MINERVA PART No.	
39	Bayonet	6-8	.15	Brown		Type 47

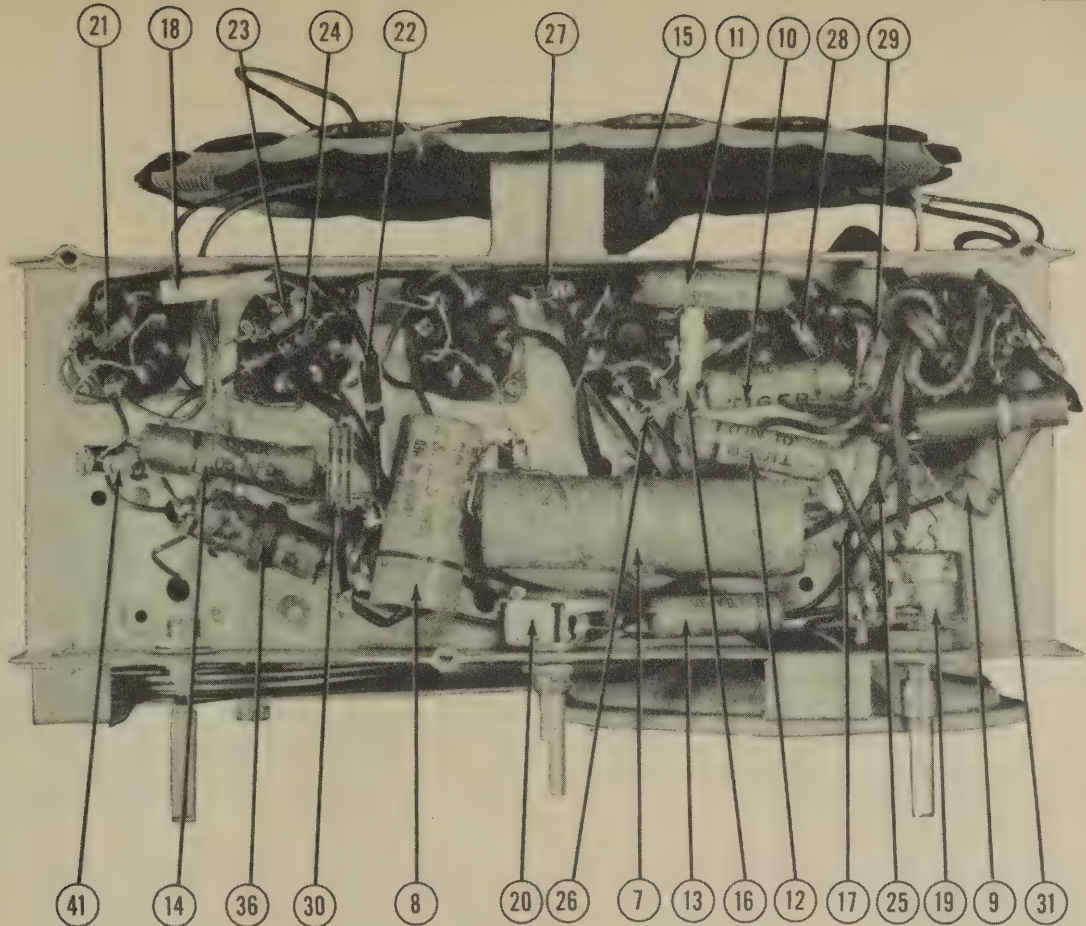
MISCELLANEOUS

ITEM No.	PART NAME	MINERVA PART No.	NOTES
40	2 Gang Var.Cap.		(28-457 MUF, 18-180 MUF)

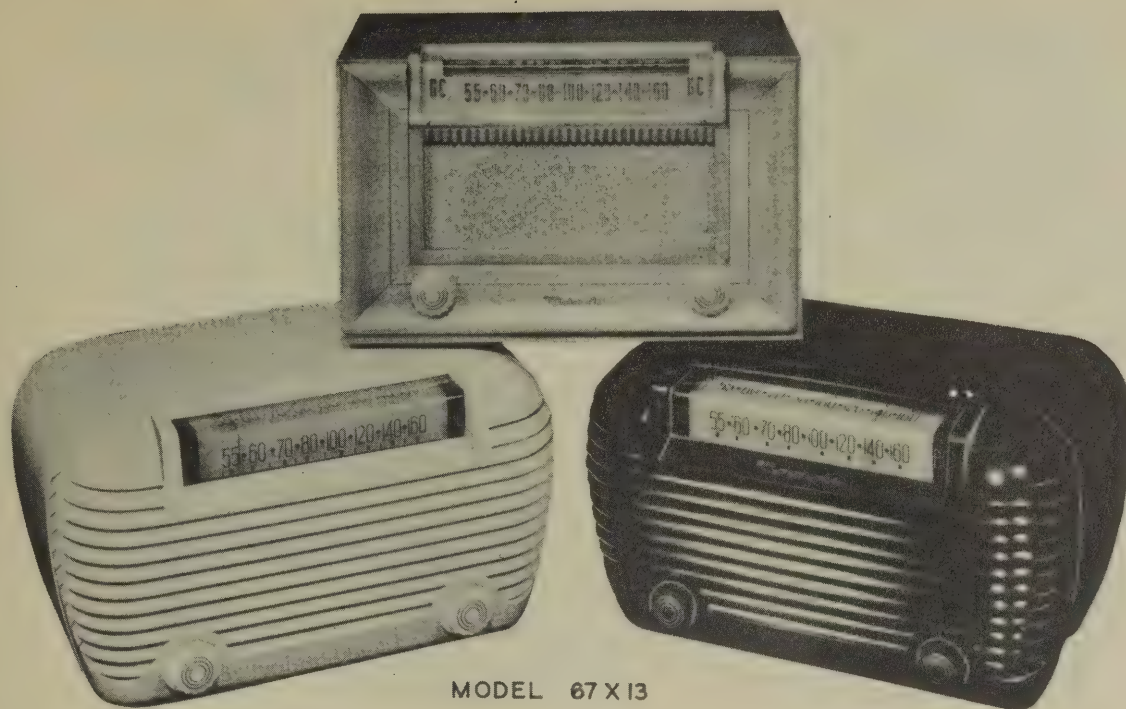


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



MOTOROLA MODELS 67X11,
67X12, 67X13 (Ch. HS-58)



MODEL 67X12

MODEL 67X13

MODEL 67X11

MOTOROLA MODELS 67X11,
67X12, 67X13 (Ch. HS-58)

TRADE NAME Motorola, Models 67X11, 67X12, 67X13 (Ch. HS-58) MANUFACTURER Motorola Inc., 4545 Augusta Blvd., Chicago, Ill. TYPE SET AC DC Operated Superheterodyne with Loop Antenna TUBES (SIX) Types, 14C7 RF Amp., 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 35A5 Power Output, 35Y4 Rectifier.						
POWER SUPPLY 110-120 Volts AC-DC TUNING RANGE—BROADCAST 535-1620KC RATING .20 Amp. @ 117V AC						
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT To set pointer turn tuning cap. fully closed and set pointer to calibration mark per dial cord drawing. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to stator of rear section of tuning capacitor. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2 .1 MFD.	"	"	"	"	A5	Adjust for minimum output.
3 .1 MFD.	"	1620KC	"	"	A6	Adjust for maximum output.
4	Loop	1400KC	Tune for maximum output.	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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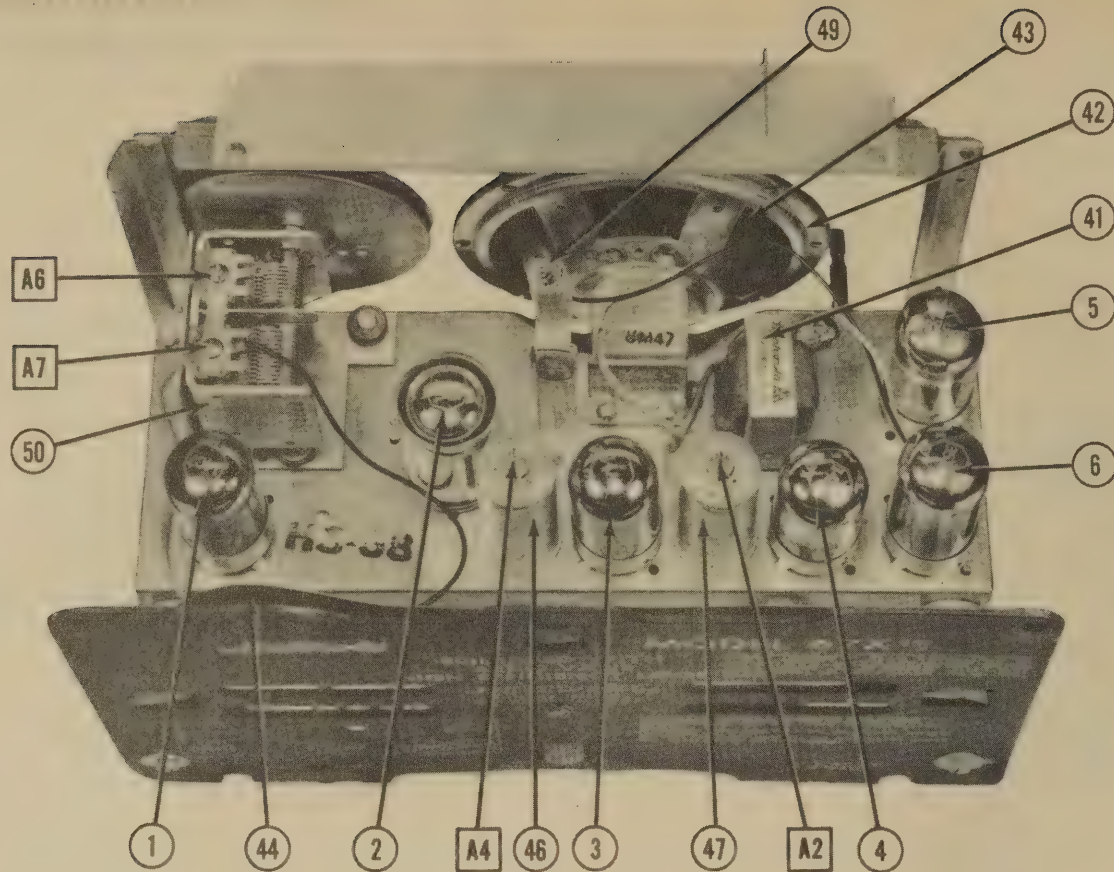
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DATE 12/47 SET #30 FOLDER #4720-20

PARTS LIST AND DESCRIPTIONS

MOTOROLA MODELS 67X11,
67X12, 67X13 (Ch. HS-58)

CHASSIS—TOP VIEW



TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
1	RF Amp.	14C7	14C7	8V	
2	Converter	14Q7	14Q7	8AL	
3	IF Amp.	14A7	14A7	8V	
4	Det.-AVC-AF	14B6	14B6	8W	
5	Power Output	35A5	35A5	6AA	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		MOTOROLA PART No.	MALLORY PART No.	SOIAR PART No.	SPRAGUE PART No.	
7A	40 CAP.	23B75808	TN129	DSB-403020-150	TTA-240	FRSA150-40-20
7B	150					
7C	150					
8	150					
9	.05	8S9816	TP426	MPH-4-05	TC-15	484-05
10	.15	8A75566	TP417	S-4-2	TC-15	484-15
11	.02	8S9802	TP423	S-4-02	TC-12	484-02
12	.25	8S9810	TP430	S-4-25	TC-2	484-25
13	.01	8S9809	TP421	S-4-01	TC-11	484-01
14	.05	8S9802	TP421	S-4-01	TC-11	484-01
15	.05	8S9816	TP426	S-4-05	TC-15	484-05
16	.05	8S9816	TP426	S-4-05	TC-15	484-05
17	.05	21R6668	NC240	MO-5-325	LFM-325	1468-00025
18	.250	21R6648	NC240	MO-5-325	LFM-325	1468-00025
19	.250	21R6648	NC240	MO-5-325	LFM-325	1468-00025
20	100	21R6641	PC235	MO-5-51	LFT-51	1468-0001

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MOTOROLA PART No.	MALLORY PART No.	CLAROSTAT PART No.	CLAROSTAT PART No.	
21A	500KΩ	18A76191	TM226	D17-13CX	AF-81	Volume Control tapped @ 25KΩ
21B	Start	Not Req.	SS25	E	KSS-3	Attach to 21A per instructions
21C	Switch		M26	41	SN-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		MOTOROLA PART No.	IRC PART No.	
22	1 Meg.	6R6004	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
23	10KΩ	6R6054	BTS-10K	Br.-Blk.-Or. RF Plate Load
24	22KΩ	6R6028	BTS-22K	Red-Red-Or. Converter Grid
25	22KΩ	6R6028	BTS-22K	Red-Red-Or. Oscillator Grid
26	2.2 Meg.	6R3927	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
27	4.7 Meg.	6R2122	BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
28	1 Meg.	6R6004	BTS-1 Meg.	Br.-Blk.-Grn.
29	220Ω	6R3933	BW-4-220	Red-Red-Br. IF Decoupling
30	47KΩ	6R6056	BW-4-47K	Red-Red-Br. Diode RF Filter
31	100Ω	6R6226	BW-4-100	Br.-Blk.-Br. AF Cathode
32	220KΩ	6R2118	BTS-220K	Red-Red-Yl. AF Plate Load
33	470KΩ	6R6032	BTS-470K	Yl.-Vi.-Vi. Output Grid
34	150Ω	6R6292	BW-4-150	Br.-Grn.-Br. Output Cathode
35	120Ω	6R6293	BTS-120Ω	Br.-Red-Red Bias Network
36	120Ω	6R6293	BTS-120Ω	Br.-Red-Red Bias Network
37	120Ω	6R6293	BTS-120Ω	Br.-Red-Red Bias Network
38	220Ω	6R3972	BW-1-220	Red-Red-Br.
39	220Ω	6R6152	BW-1-220	Red-Red-Br.
40	27Ω	6R5683	BW-1-27	Red-Vl.-Blk. Surge Limiter

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	MOTOROLA PART No.	THORDARN PART No.	
41A	2650Ω	3.8Ω	25876117	T22845*	*Drill new mounting holes. Alternate Transformer
B		260Ω	25876118	A-3876*	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD PW.	VC IMP.	MOTOROLA PART No.	JENSEN PART No.	
42	3.8Ω	3.8Ω	50876196	ST-105†	†Drill and tap magnet frame.
43	4-3/4"	1/2"		Mod. P5-X	

NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.
44	Loop Ant.	2.2Ω	9Ω	24K77323	
45	Osc. Coil	1.5Ω	15Ω	24A76192	
46	Input IF	15Ω	13Ω	24B470038	
47	Output IF	14Ω	65Ω	24B75487	
48	Wave Trap			24A77336	

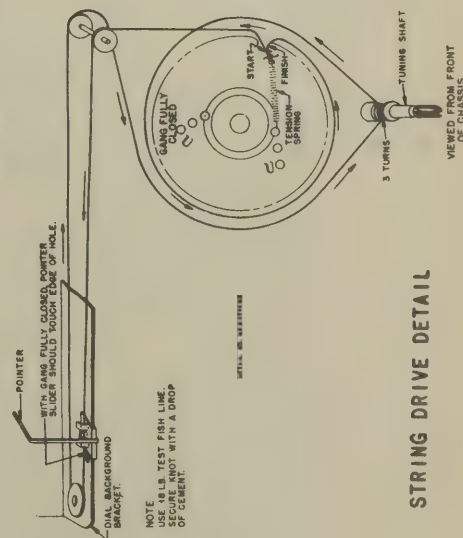
*Add 50MMFD from grid to high side tuning cap.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MOTOROLA PART No.		
49	Bayonet	6-8	0.15	Brown	65X11854		Type 47

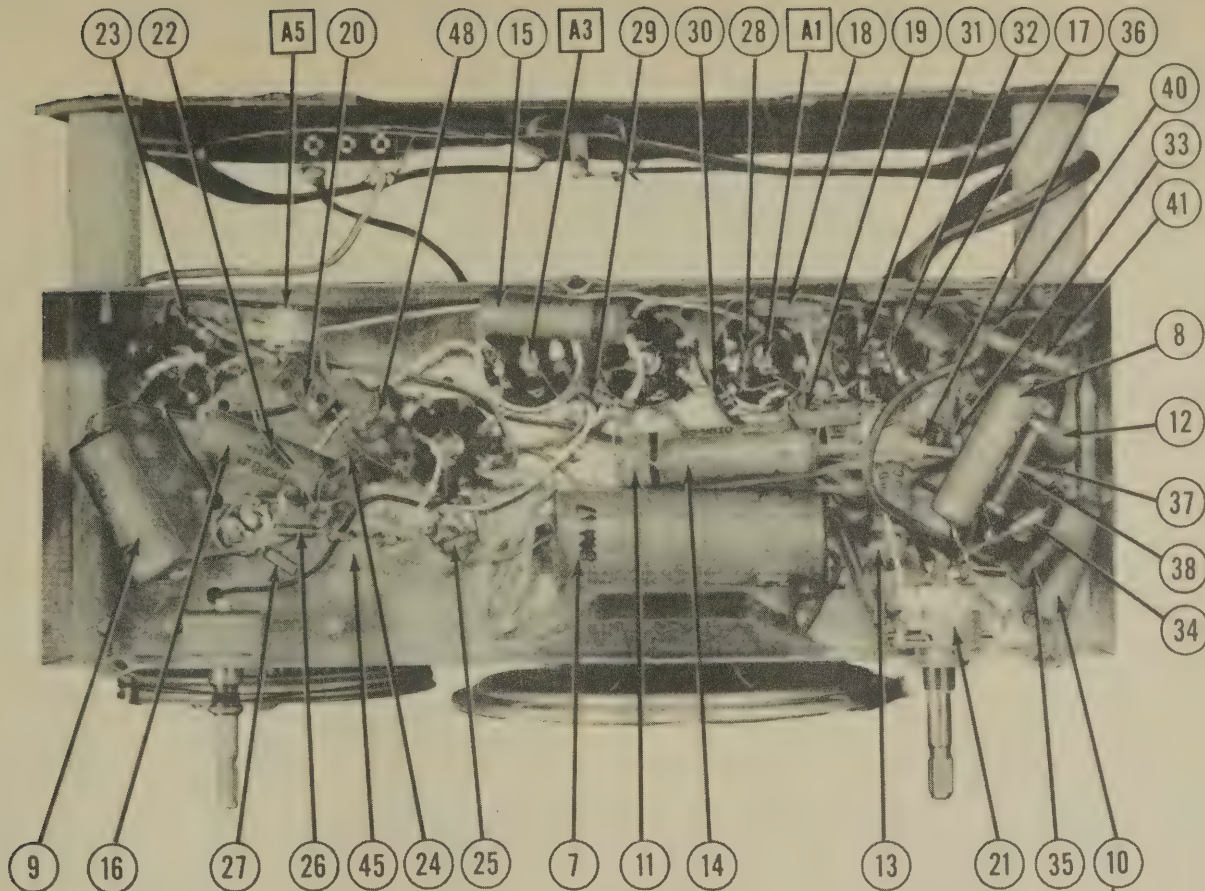
MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
50	2 Gang Var. Cap	1X77339	(33-427 VWF, 34-201 VWF)
A5	Trimmer	20A28941	Wave Trap Adj.

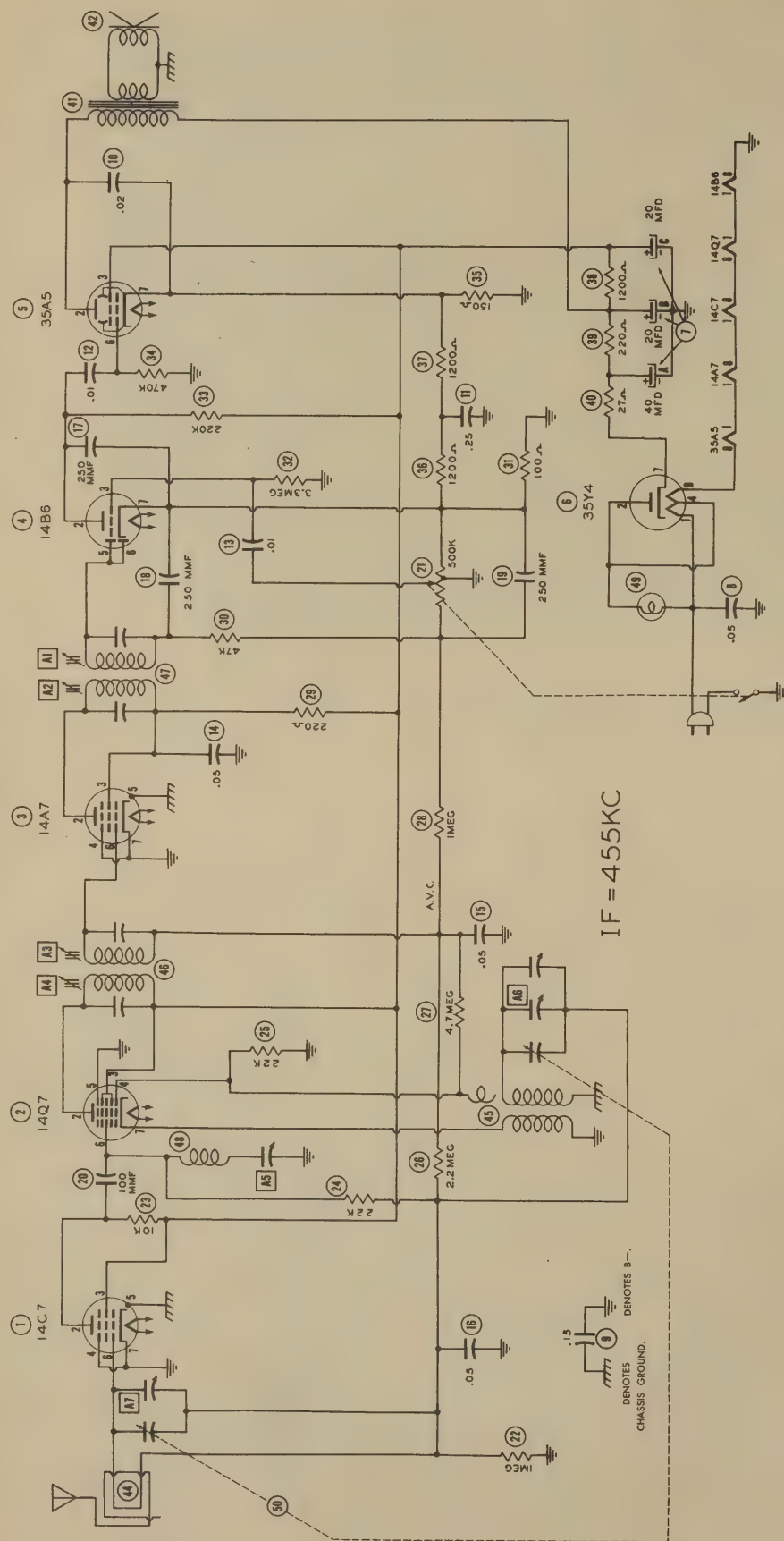


STRING DRIVE DETAIL

CHASSIS—BOTTOM VIEW



MOTOROLA MODELS 67X11, 67X12, 67X13 (Ch. HS-58)



		VOLTAGE BRANDS				
	Item	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
V	1	14C7	35V4C	45V0C	71V0C	OV.
	2	14C7	12V6C	71V0C	71V0C	OV.
	3	14A7	47V4C	70V0C	70V0C	OV.
V	4	14B6	12V6C	55V0C	-5V0C	-6V0C
	5	35A4S	47V4C	90V0C	71V0C	2.5V0C
	6	35V4	117V4C	113V4C	55V0C	OV.

TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS						
	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4
1	1	1427	380	6000	5000	00
	2	1427	120	5000	5000	2200
	3	1447	600	5000	5000	00
	4	1486	120	27000	3 1000	1000
	5	3545	500	5000	5000	65000
2	1	3545	1100	5000	5000	1100
	2	3545	1100	5000	5000	1100

THE COOPERATION OF THE MANUFACTURER OF THIS
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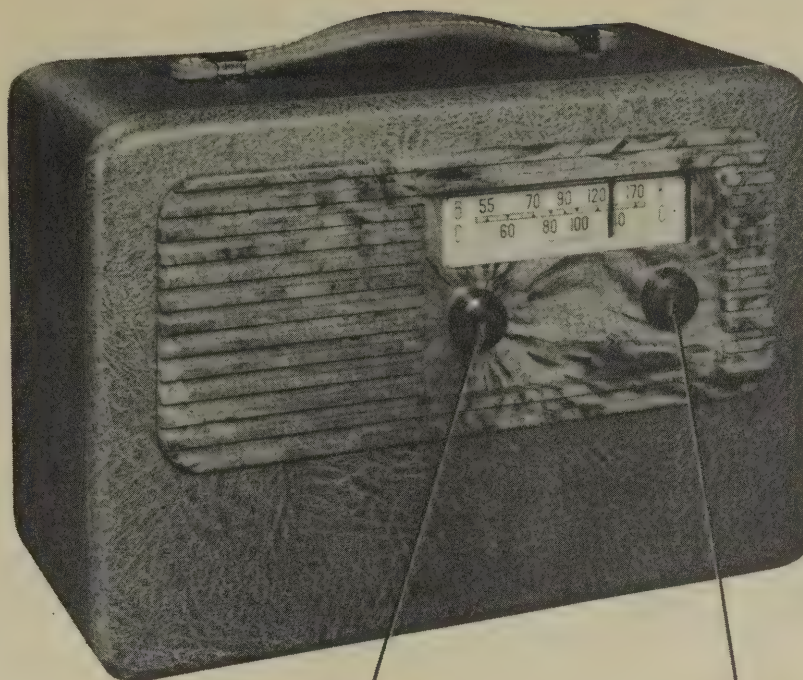
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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4720-20

1. DC Voltage measurements are a 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 5\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

OLYMPIC MODEL 7-526

TRADE NAME	Olympic, Model 7-526
MANUFACTURER	Olympic Radio & Tele. Corp., 3101-19 38th Ave., Long Island City, N.Y.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 1LN5 RF Amp., 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 3Q5GT Power Output.
POWER SUPPLY	105-125 Volts AC-DC or 9 Volts "A" Supply and 90 Volts "B" Supply
RATING	.230 Amp. @ 117 Volts AC or 55MA @ 9 Volts DC and 15MA @ 90 Volts DC
TUNING RANGE—BROADCAST	535-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to extreme left edge of dial pointer line.
Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to front stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200MMFD; to reduce hum modulation. Repeat adjustments.
2	Loop	1500KC	1500KC	"	A5,A6, A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3	"	600KC	Tune for maximum output.	"	A8	Rock tuning cap. and adjust for maximum output. Repeat Steps 2 & 3 until no further improvement can be made.

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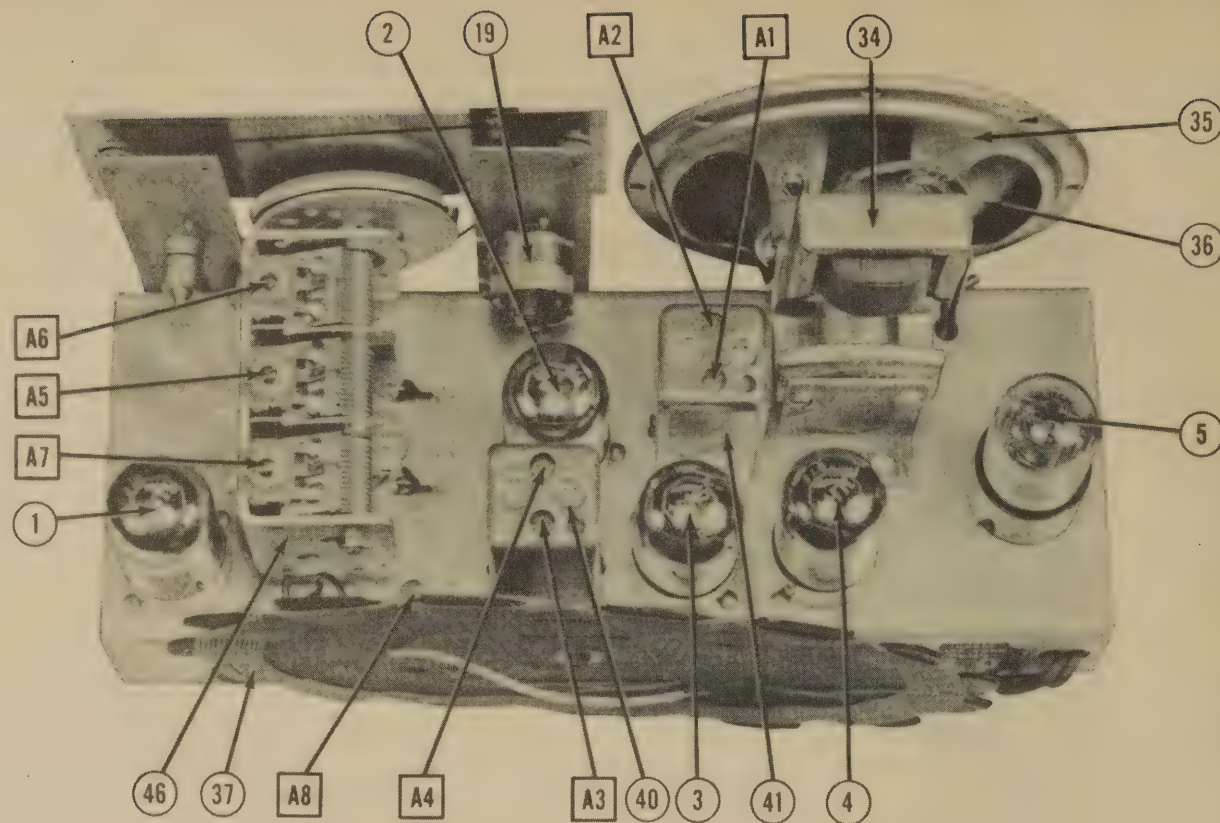
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DATE 12/47 SET #30 FOLDER #4720-21

PARTS LIST AND DESCRIPTIONS

OLYMPIC MODEL 7-526
BATTERY-LINE OPERATED

CHASSIS—TOP VIEW



TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		OLYMPIC PART No.	STANDARD REPLACEMENT		
1	RF Amp.	11L5	11L5	7A0	
2	Converter	11L6	11L6	7AK	
3	IF Amp.	11L5	11L5	7A0	
4	Det.-AVC-AF	11L4	11L4	5AG	
5	Power Output	3350T	3350T	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		OLYMPIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	80 CAP. 150 VOLT	CO-182	FF309*	DSB-8040-150		Filter - Blue
B	20 CAP. 150 VOLT		TC-45			Filament Bypass-Yellow
C	100 CAP. 15 VOLT		M-100-15			Line Filter
7	.05 CAP. 400 VOLT	RCP10M45034	TP426	S-4-05	TC-15	Output Plate Bypass
8	.005 CAP. 600 VOLT	RCP10M65024	TP408	S-6-005	TC-25	Audio Coupling
9	.001 CAP. 600 VOLT	RCP10M65024	TP410	S-6-01	TC-11	Filament Bypass
10	.005 CAP. 600 VOLT	RCP10M45034	TP426	S-6-005	TC-25	Conv. Screen Bypass
11	.01 CAP. 600 VOLT	RCP10M45034	TP426	S-6-01	TC-15	AVC Filter
12	.01 CAP. 600 VOLT	RCP10M45034	TP410	S-6-01	TC-11	RF Screen Bypass
13	.02 CAP. 400 VOLT	RCP10M42034	TP423	S-4-02	TC-12	Filament Bypass
14	.1 CAP. 200 VOLT	RCP10M21044	TP428	S-4-1	TC-1	AVC Filter
15	.02 CAP. 400 VOLT	RCP10M45034	TP426	S-4-05	TC-15	Filament Bypass
16	.05 CAP. 400 VOLT	RCP10M42034	TP423	S-4-02	TC-12	AVC Filter
17	.1 CAP. 500 VOLT	RCM20A101M	M2235	MO-5-31	1FM-31	AF Grid Bypass
18	.47 CAP. 500 VOLT	RCM20A470M	M2225	MO-5-45	1FM-45	Osc. Grid Cap.

*Parallel sections to obtain desired capacity. †Do not use bypass section.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		OLYMPIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
19A	1 Meg. B Shaft C Switch	PT-576	Not Req.	D13-137 E 42	AM-63-2 KSR-3 SW-A2	Volume Control Attach to 19A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		OLYMPIC PART No.	MALLORY PART No.	IRC PART No.	IRC PART No.	
20	1 Meg.	REB105H		BTS-1 Meg.		Br.-Blk.-Grn. AVC Network
21	2.2 Meg.	REB225M		BTS-2.2 Meg.		Red-Red-Grn. AVC Network
22	3.3 Meg.	REB335M		BTS-3.3 Meg.		Or.-Or.-Grn. Oscillator Grid
23	150K			BTS-150K		Br.-Or.-Yl. Converter Screen Dropping
24	33K	REB333M		BTS-33K		Or.-Or.-Yl. Converter Screen Dropping
25	100K	REB102M		BTS-100K		Br.-Blk.-Red. Filament String
26	820K	REB825M		BTS-820K		Gray-Gray-Grn. Af Grid
27	6.8 Meg.	REB685M		BTS-6.8 Meg.		Blue-Gray-Grn. Af Grid
28	1 Meg.	REB105H		BTS-1 Meg.		Br.-Blk.-Grn. Af Plate Load
29	2.2 Meg.	REB225M		BTS-2.2 Meg.		Red-Red-Grn. Output Grid
30	150K	REB152M		BTS-150K		Br.-Grn.-Red. Filament String
31	220K	REC222H		BTA-2200		Red-Red-Red Filter
32	27K	RED270K		BW-2-27		Red-VI.-Blk. Rectifier Ballast
33	2400K	RE-879		AB-2500		Filament Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE	PRI. SEC.	DC RES.	WATTS	OLYMPIC PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
34	7000Ω	3.5Ω	460Ω	5Ω	Part of SK-476	A-38781	T225471	A-2831†	†Bend mounting tabs down, file out slots and mount on original bracket.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA	INSTALLATION NOTES
	FIELD	OLYMPIC PART No.	JENSEN PART No.
35	VC IMP. 3.5Ω	SK-476	ST-105*
36	CONC DIA. VC 4-5/8" 1/2"		Mod. FS-X
		NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT	

R F COILS

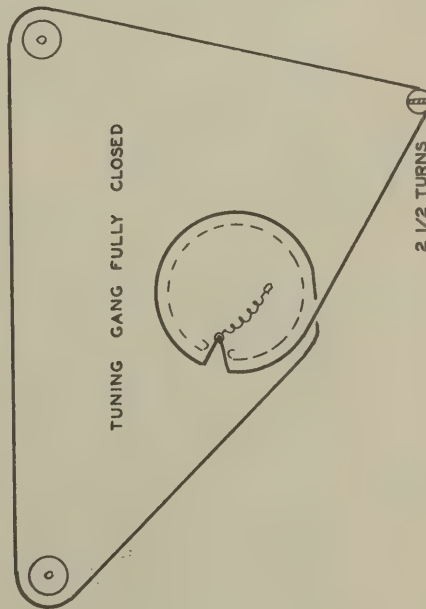
ITEM No.	USE	DC RES.	REPLACEMENT DATA	MEISSNER PART No.
		PRI.	SEC.	
37	Loop Ant.		1.8Ω	LP993
38	RF Coil.	105Ω	15Ω	CL964
39	Osc. Coil	4.8Ω	4.1Ω	CL957
40	Input IF	20.5Ω	20.5Ω	TR707
41	Output IF	18.5Ω		TR708

BATTERIES

ITEM No.	VOLTAGE	OLYMPIC PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
42	9V "A"		#746			2 Used in series " " " "
43	90V "B"			#482		

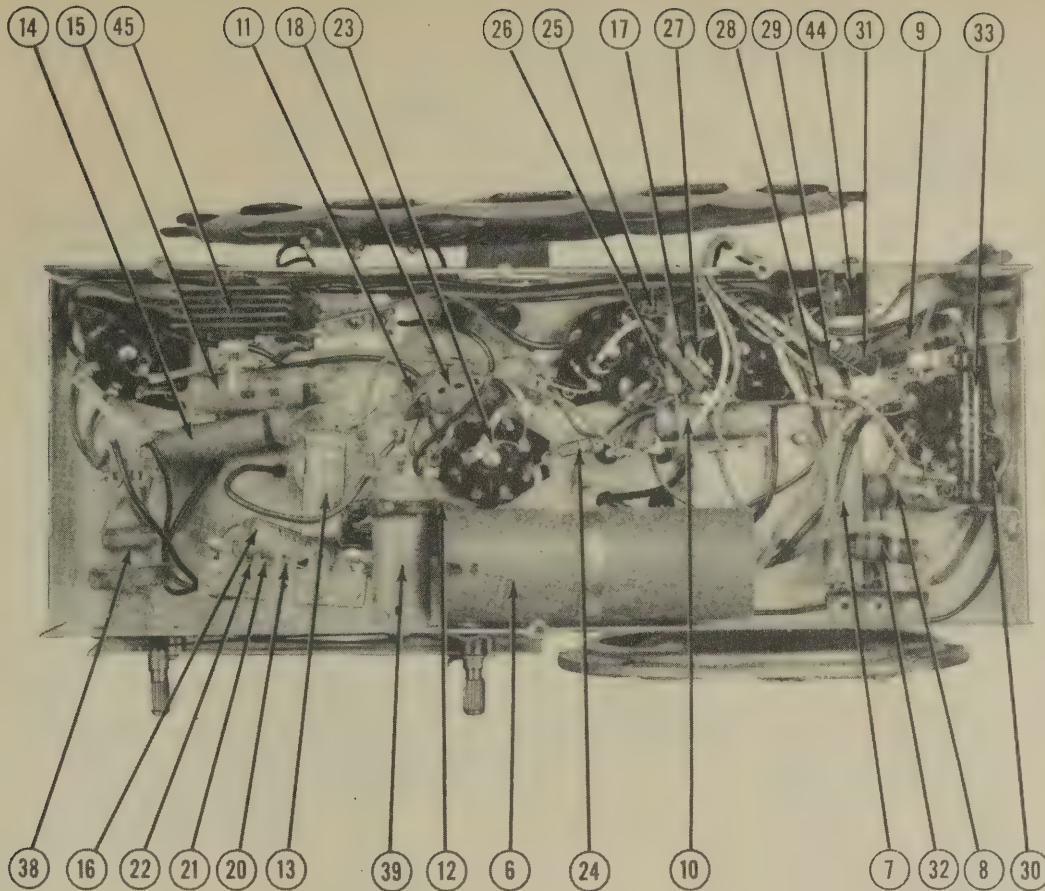
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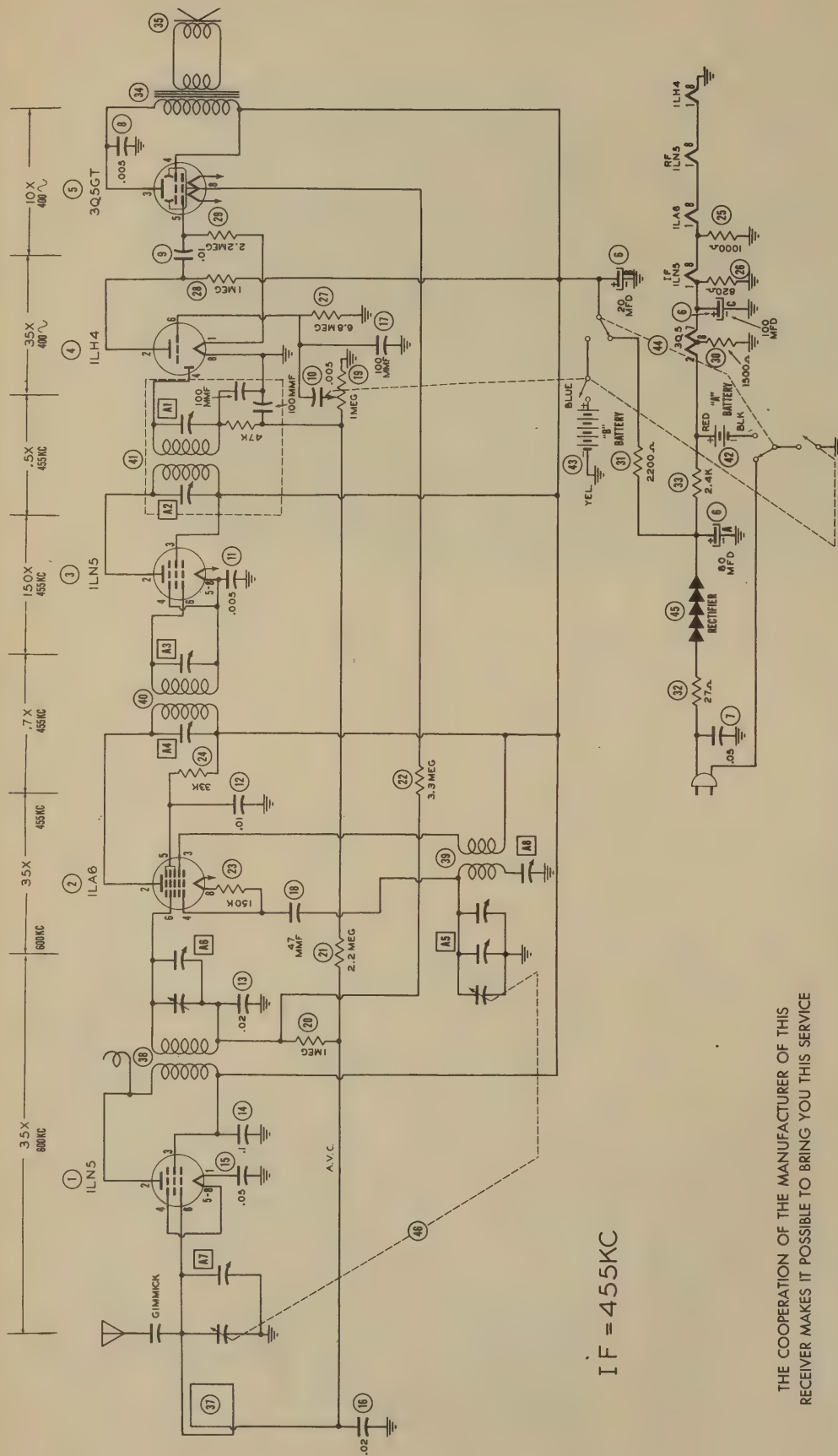
ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
44	Switch	SW-185	AC-DC-Batt.
45	Rectifier	RF-770	Selenium
46	5 gang Var. Cap	CV-816	(21-481 MTF, 21-481 MTF)
48	Padder	CT-388	Osc. Adj.
	Dial Pointer	PO-355	



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

VOLTAGE AND RESISTANCE READINGS TAKEN IN A-C-DC POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LN5	370C	5570C	5570C	1.570C	1.570C	.470C	0V.	1.570C
2	1LA6	4.470C	9570C	9570C	-1.670C	5870C	.570C	0V.	370C
3	1LN5	5.970C	9570C	9570C	4.470C	4.470C	4.470C	0V.	4.470C
4	1LN4	1.570C	5570C	0V.	-.270C	0V.	-.170C	0V.	0V.
5	3650T	8.870C	9270C	9270C	9570C	1.070C	0V.	5.470C	7.470C

Item	Tube	RESISTANCE READINGS							
		Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LN5	*	4.4K3	4.4K3	*		2 Meg.	INF.	*
2	1LA6	*	4.4K3	4.4K3	150K3	37K0	2 Meg.	INF.	*
3	1LN5	*	4.4K3	4.4K3	*	*		INF.	*
4	1LN4	*	1 Meg.		800K2	INF.	7 Meg.	INF.	02
5	35S5T	02	*	4.8K3	4.4K3	2.8 Meg.	INF.		*

TAKEN WITH VACUUM TUBE VOLTMETER.

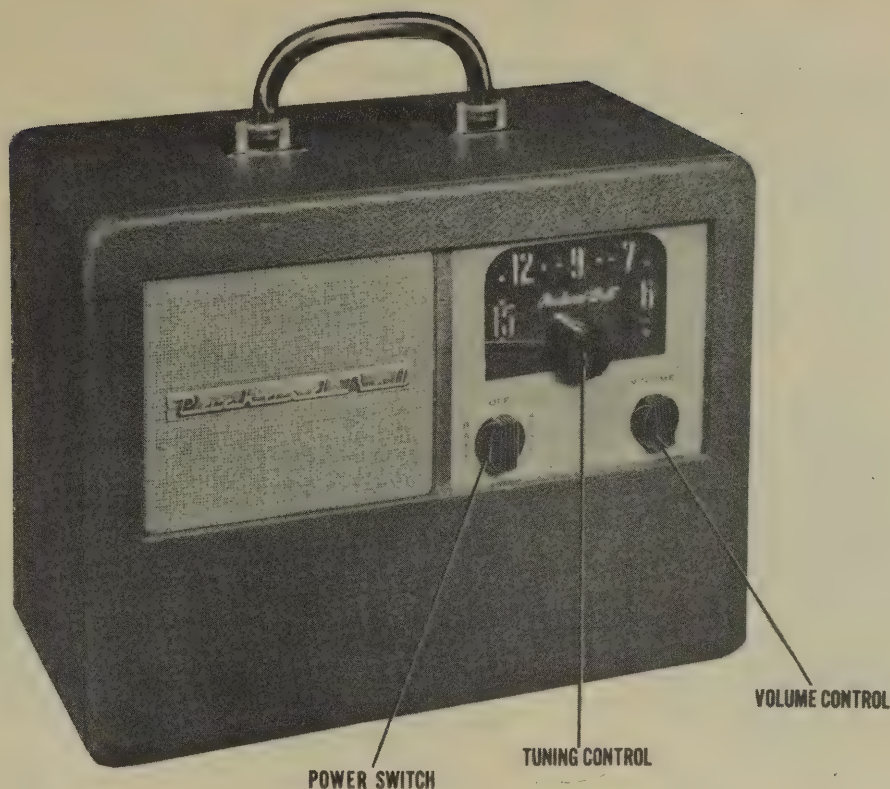
*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4720-21

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.



PACKARD-BELL MODEL 471

TRADE NAME Packard-Bell, Model 471
MANUFACTURER Packard Bell Co., 3443 Wilshire Blvd., Los Angeles, Calif.
TYPE SET Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR) Types, 1R5 Converter, 1T4 IF Amp., 1B5 Det.-AVC-AF, 3V4 Power Output,
POWER SUPPLY 105-120 Volts AC-DC or 7.5 Volt "A" Supply & 90 Volt "B" Supply in Pack Form
RATING .120 Amp. @ 117 Volts AC or 48MA @ 7.5 Volts DC & 18MA @ 90 Volts DC
TUNING RANGE—BROADCAST 540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .01 MFD	High side to Pin 6 (grid) 1R5. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy ant. to 200M Ω to reduce hum modulation.
2 .01 MFD	"	1620KC	"	"	A5	Adjust for maximum output.
3 Loop	"	1500KC	Tune for maximum output	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4	"	600KC	"	"	Loop	Loop is correct when turning A6 either way causes a decrease in signal. If signal increases when A6 is loosened turn back a short piece of the outer winding of the loop. If output increases when A6 is tightened then extend the outer winding of the loop and recheck with A6. After this adjustment of loop always repeat Steps 2 and 3.

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DATE 12/47 SET #30 FOLDER #4720-22

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

PACKARD-BELL MODEL 471
BATTERY OPERATED

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PACKARD-BELL PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM#	RATING		PACKARD-BELL PART No.	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT		MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.		CORNELL-DUBIER PART No.
5A	40	150	24007A	FP304	DY-304	EL-351	AF84D20A	UP4CJ65	■ Filter
B	20	150							▲ Filament Bypass.
C	100	12							
6	100	25	24040	TC2501	M-100-25	UHC-102	PR8A25-100	BRH251	Line Filter
7	.05	400	23009	TP426	MFH-4-05	TC-15	484-05	DT485	Audio Screen Bypass
8	.01	400	23022	TP421	S-4-01	TC-11	684-01	DT481	Off Screen Bypass
9	.005	400	23004	TP408	S-6-005	TC-25	684-005	DT6D5	Off Screen Bypass
10	.005	200	23004	TP426	S-4-05	TC-15	484-05	DT485	Off Screen Bypass
11	.1	200	23019	TP428	S-4-1	TC-1	484-1	DT4F1	Filament Bypass
12	.1	200	23019	TP428	S-4-1	TC-1	484-1	DT4F1	Line Isolation
13	.05	200	23017	TP428	S-4-05	TC-15	484-05	DT485	AVC Filter
14	470	23908	MC245	MO.5-35	1FW-35	1468-0005	SW5T5	SW5Q5	Audio Coupling
15	47	23912	MC225	MO.5-45	1FW-45	1468-0005	SW5T5	SW5Q5	Audio Plate Bypass
16	470	23908	MC245	MO.5-35	1FW-35	1468-0005	SW5T5	SW5Q5	Audio Coupling
17	220	23915	MC240	MO.5-325	1FW-325	1468-00025	SW5T25	SW5Q5	Diode Filter
18	47	23912	MC225	MO.5-45	1FW-45	1468-00005	SW5Q5	SW5Q5	Osc Grid Cap.

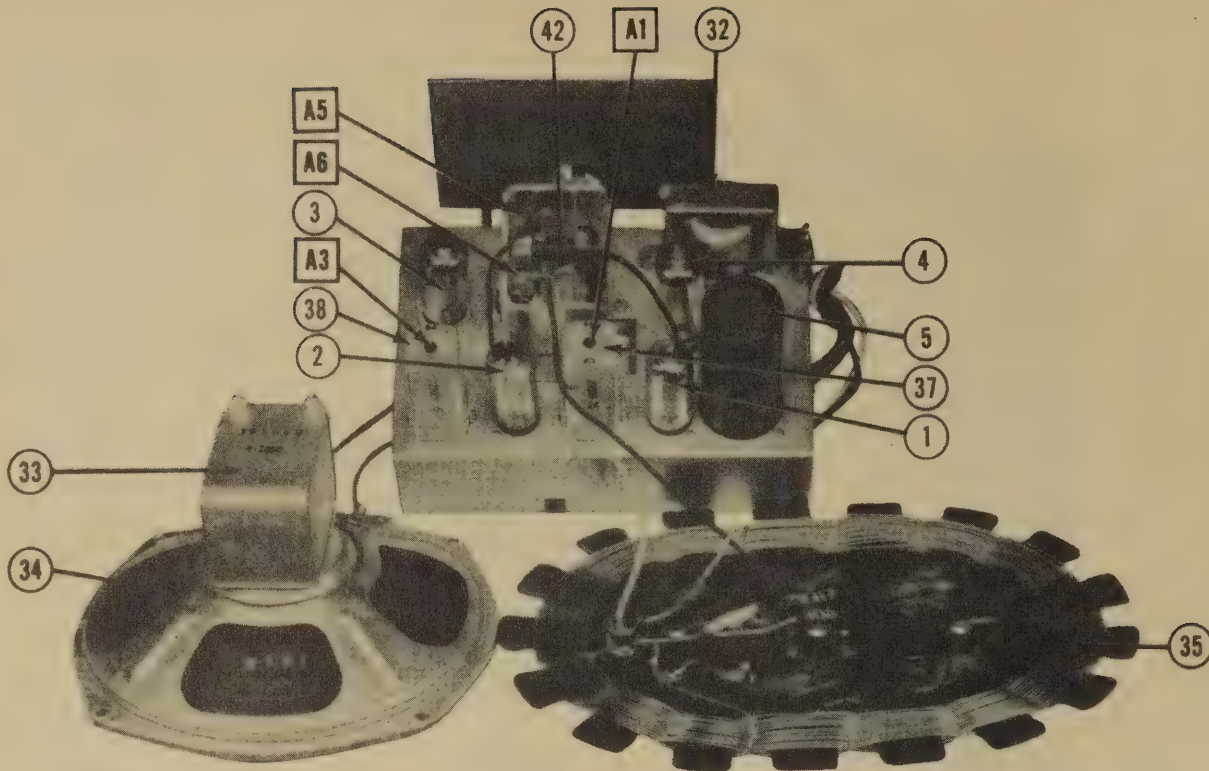
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PACKARD-BELL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
19A	3 Meg. 1/2	25005A	MR57	DL3-140	M-67-Z	Volume Control
B	Shaft	Not Req.	Not Req.	A	Not Req.	Attach to 19A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		PACKARD-BELL PART No.	IRC PART No.	
20	56K	73027	BTS-56K	Grn.-Blue-Or. Oscillator Grid - See Note 1
21	1500	73057	BTS-1500	Br.-Grn.-Red Screen Decoupling
22	4.7 Meg.	73057	BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
23	10 Meg.	73057	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
24	4.7 Meg.	73057	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen Dropping
25	1 Meg.	73053	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
26	1 Meg.	73018	BW-1 Meg.	Red-Vi.-Br. Output String
27	2700	73018	BW-2700	Red-Vi.-Br. Filament String
28	10000	73025	AB-2500	Filament Dropping
29	25000	73128	BTB-2700	Red-Vi.-Red Filter
30	27000	73128	BTB-2700	Yl.-Vi.-Blk. Surge Limiter - See Note 2
31	470	73086	BW-1-47	

Note 1 - Some models use 47K in this application. IRC replacement BTS-47K.
Note 2 - Some models use two 100K resistors in this application. Replacement same as above.



PACKARD-BELL MODEL 471

CHASSIS—BOTTOM VIEW

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		PACKARD-BELL PART No.	THORNDAR'N PART No.	
32	8800Ω	3.5Ω	1300Ω .6Ω	89414A	A-3879 T22947	A-2900

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		PACKARD BELL PART No.	JENSEN BELL PART No.	
33	FIELD PM	83300	ST-110 Mod. P6V	
34	CONC DIA. VC DIA. 1/2"	NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT		

R F COILS

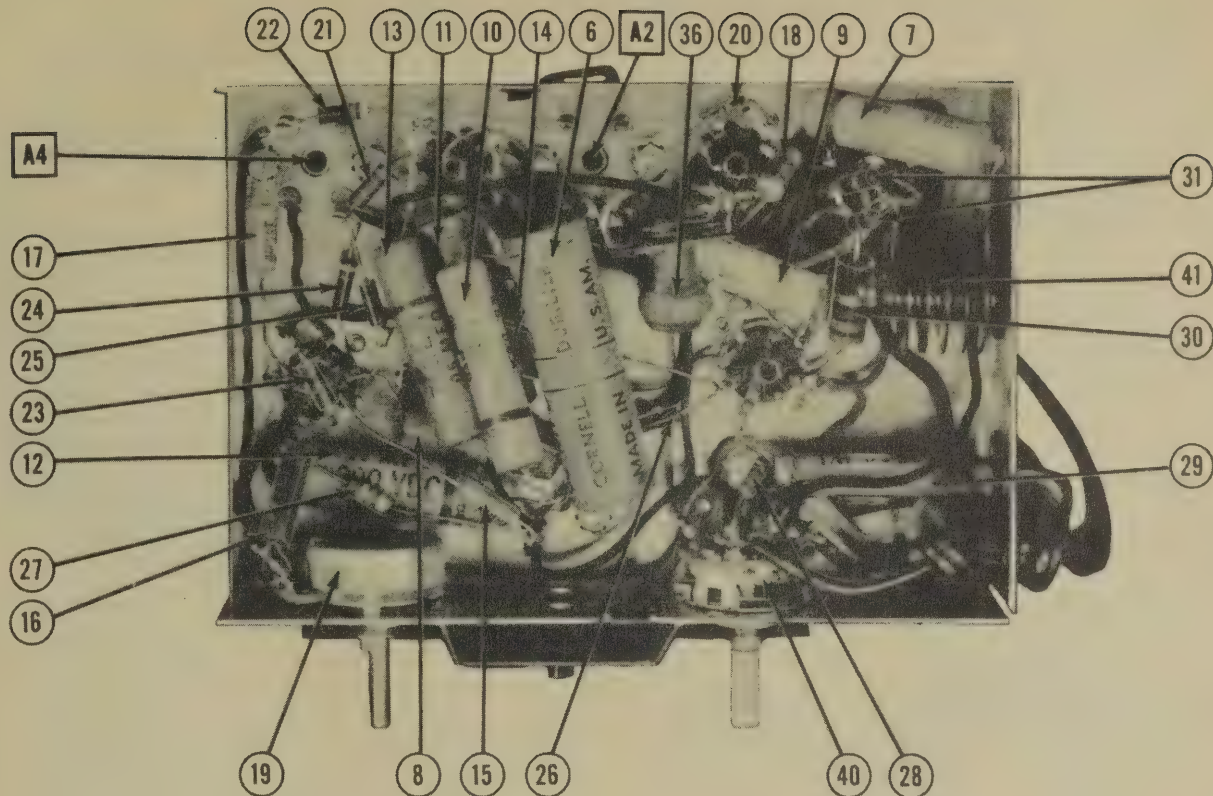
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	PACKARD-BELL PART No.	MEISSNER PART No.
35	Loop Ant.	1Ω	3Ω	29322	14-1040
36	Osc. Coi	9Ω	3.2Ω	29210	
37	Input IF	22Ω	21.8Ω	29009	
38	Output IF	22Ω	23Ω	29009	

BATTERIES

ITEM No.	VOLTAGE	PACKARD-BELL PART No.	EVEREADY		INSTALLATION NOTES
			"A"	"B"	
39	7.5V "A" 80 V "B"			#754	

MISCELLANEOUS

ITEM No.	PART NAME	PACKARD BELL PART No.	NOTES
40	Switch	86015	Power Change-Over
41	Rectifier	72001	Selenium
42	2 Gang Var. Cap	23502h	30-268 MTF, 30-440 MTF
	Dial Pointer	38067	
	Cabinet	67028	
		21085	



PHOTOFACT* Folder

PHILCO MODEL
UN6-400



PHILCO MODEL
UN6-400

PHILCO MODEL
UN6-400

PHILCO MODEL UN6-400

TRADE NAME		Philco, Model UN6-400				
MANUFACTURER		Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.				
TYPE SET		Battery Operated Universal Automotive Superheterodyne Receiver				
TUBES (SIX)		Types, 7A7 RF Amp., 7B8 Converter, 7A7 IF Amp., 7B6 Det.-AVC-AF, 7C5 Power Output, 7Y4 Rectifier.				
POWER SUPPLY		6 Volt Storage Battery				
TUNING RANGE—BROADCAST		550-1580KC		RATING	7.4 Amp. @ 6.3 Volts DC	
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to front stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully closed	Across voice coil	A1,A2, A3,A4.	Ground rear stator of tuning cap. to chassis. Adjust for maximum output in order given then repeat. Remove ground from rear stator.
10MMFD cap. in series with ant. lead	High side to 10MMFD cap. Low side to chassis.	1580KC	Tuning cap. fully open.	"	A5	Adjust for maximum output.
"	"	1400KC	Tune for maximum output.	"	A6	" " " "
"	"	580KC	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 and 4 until no further improvement can be made.
After receiver has been installed in car turn tuning capacitor fully closed and set pointer at index dot at low frequency end of dial. Also tune in weak signal near 1400KC and adjust A6 for maximum volume.						

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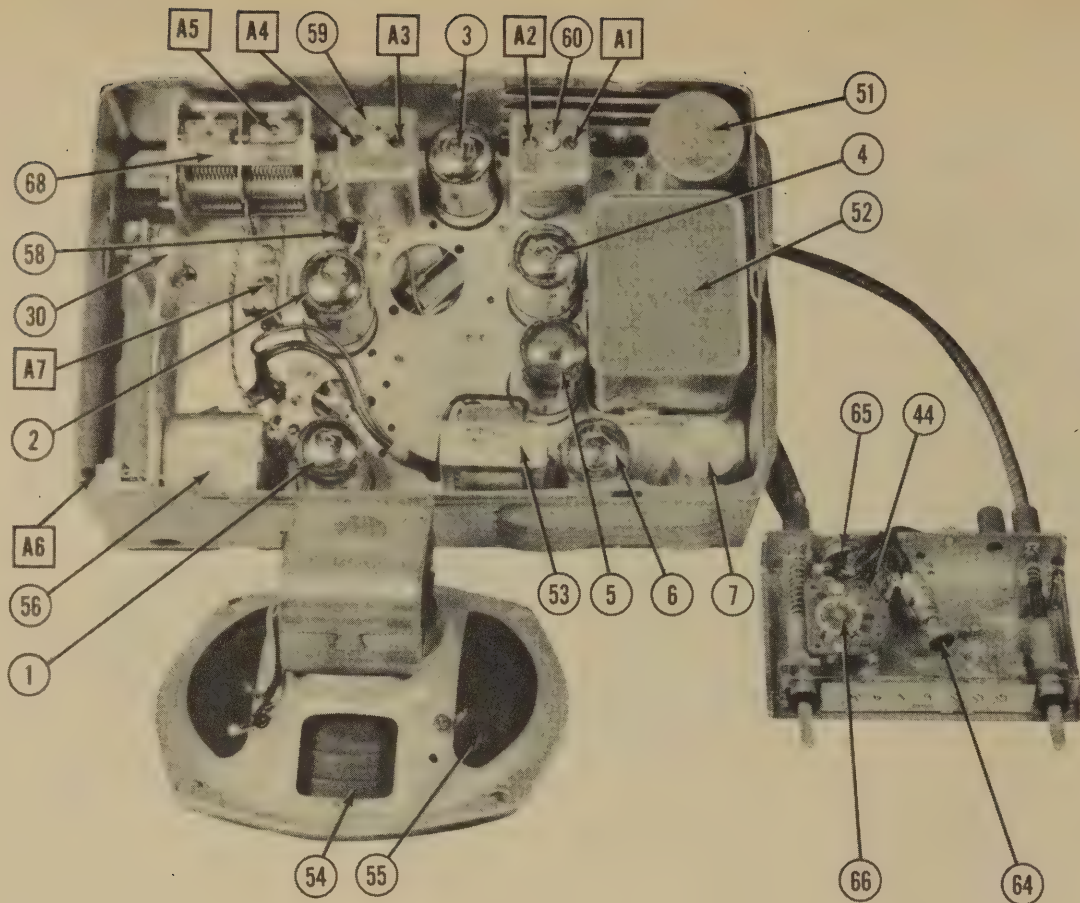
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PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	USE	REPLACEMENT DATA			REPLACEMENT DATA			IDENTIFICATION CODES AND INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	INST. PART No.	SOLAR PART No.	AEROVOX PART No.	
1	RF Amp.	7A7	7A7	8V	EL-153	DY-310	AF324A	UPL135C
2	Converter	7B8	7B8	8X	TC-5	SH-1	434-5	D74P5
3	1st Amp.	7A7	7A7	8V	TC-16	TM-16-005	1684-005	M16B5
4	Det.-AFC-AF	7B6	7A7	8W	TP-427	S-6-06	494-06	D74S6
5	Power Output	7C5	7B6	6AA	TP-434	TM-10-01	1034-01	M16S1
6	Rectifier	7Y4	7C5	5AB	TP-410	S-6-01	884-01	D76S1
7					TP-420	S-4-25	884-25	D74P5
8					TP-428	S-4-1	434-1	D74P1
9					TP-409	S-6-06	494-06	D76D6
10					TP-426	S-4-06	434-06	D74S6
11					TP-428	S-4-06	434-06	D74S6
12					TP-426	S-4-06	434-06	D74S6
13					TP-428	S-4-06	434-06	D74S6
14					TP-426	S-4-06	434-06	D74S6
15					TP-428	S-4-06	434-06	D74S6
16					TP-426	S-4-06	434-06	D74S6
17					TP-428	S-4-06	434-06	D74S6
18					TP-426	S-4-06	434-06	D74S6
19					TP-428	S-4-06	434-06	D74S6
20					TP-426	S-4-06	434-06	D74S6
21					TP-428	S-4-06	434-06	D74S6
22					TP-426	S-4-06	434-06	D74S6
23					TP-428	S-4-06	434-06	D74S6
24					TP-426	S-4-06	434-06	D74S6
25					TP-428	S-4-06	434-06	D74S6
26					TP-426	S-4-06	434-06	D74S6
27					TP-428	S-4-06	434-06	D74S6
28					TP-426	S-4-06	434-06	D74S6
29					TP-428	S-4-06	434-06	D74S6

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		PHILCO PART No.	MALLOY PART No.	IRC PART No.	
30	350K Ω	67-0043			Volume Control

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		PHILCO PART No.	MALLOY PART No.	IRC PART No.	
31	680 Ω	66-1683340			Blue-Gray-Br. RF Cathode
32	3300 Ω	BTS-3300			Or.-Or.-Red RF Plate Load
33	68K Ω	66-3683340			Blue-Gray-Or. Converter Grid
34	180 Ω	66-1183340			Br.-Gray-Br. Converter Cathode
35	68K Ω	66-3683340			Blue-Gray-Or. Converter Anode
36	100K Ω	BTS-100K			Br.-Blk.-Vl. Oscillator Grid
37	1 Meg.	66-4103340			Br.-Blk.-Grn. AVC Network
38	3300 Ω	BTS-3300			Or.-Or.-Red Decoupling
39	22K Ω	66-3224340			Red-Red-Or. Screen Dropping
40	470 Ω	66-1473340			Vl.-Vl.-Br. IF Cathode
41	15 Meg.	66-6151540			Br.-Grn. Blue AF Grid
42	330 Ω	66-1333340			Or.-Or.-Br. AF Cathode
43	220K Ω	66-4223340			Red-Red-Il. AF Plate Load
44	47K Ω	66-3473340			Vl.-Vl.-Or. Tone Compensation
45	470K Ω	66-4473340			Vl.-Vl.-Vl. Output Grid
46	220 Ω	66-1224360			Red-Red-Br. Output Cathode
47	1500 Ω	BTS-1500			Br.-Grn.-Red Tone Compensation-See Note
48	220 Ω	66-1153340			Red-Red-Br. High Suppression
49	1500 Ω	66-2104340			Br.-Grn.-Br.
50	1000 Ω	66-2104340			Br.-Blk.-Red Filter

Note-Some models use 680 Ω in this application. Replacement same as #31.

PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				PHILCO PART No.	MALLOY PART No.	RADIART PART No.	
51	Interrupter	6.3	115V	83-0025	859	5326P	

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA	
	PRI.	SEC. 1	SEC. 2	SEC. 3	PHILCO PART No.	STANCOR PART No.
					65-0234	
52	6.3V DC	520V CT				
	③ 4.3A	④ .057A				

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.	PHILCO PART No.	STANCOR PART No.	MERIT PART No.		
	PRI.	SEC.						
53	5500Ω	3.3Ω	380Ω	.4Ω	65-0419	A-3877*	T28546*	*Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	PHILCO PART No.	JENSEN PART No.	PHILCO PART No.	STANCOR PART No.	
54	FIELD RES. 1.4Ω	VC IMP. 3.3Ω	73-0059		
55	6-1/8"	VC DIA. 1/2"			NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.
56	Ant. Coil	1.5Ω		65-0323	
57	Ant. Choke		.5Ω	65-0168	
58	Osc. Coil	8Ω		65-0420	14-1040
59	Input IF	16Ω	11Ω	65-0319	16-6658
60	Output IF	22Ω		65-0320	16-6670
61	RF Choke	0Ω		65-0433	
62	RF Choke	0Ω		65-0037	
63	RF Choke	0Ω		65-0452	

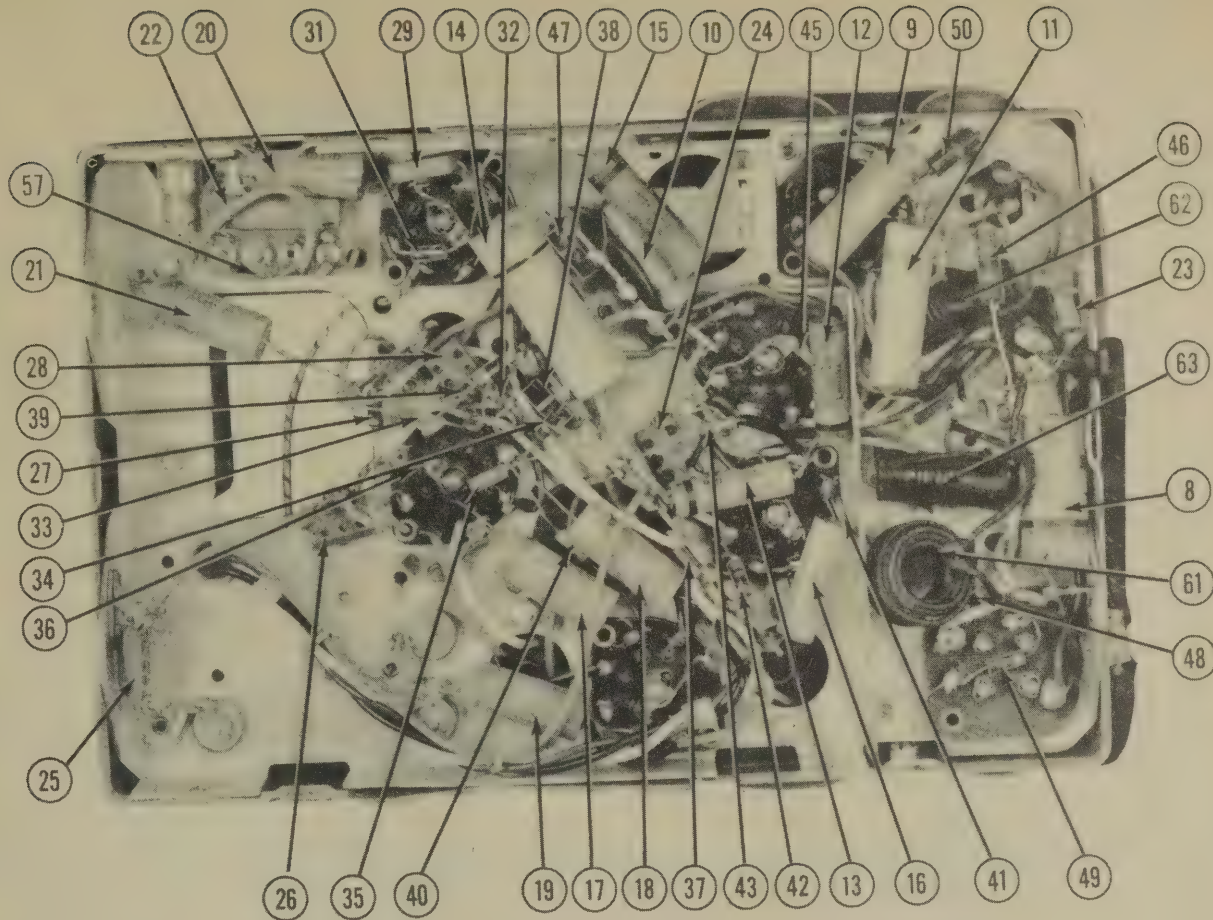
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	PHILCO PART No.	
64	Bayonet	6-8		White	34-2039	Type 422

MISCELLANEOUS

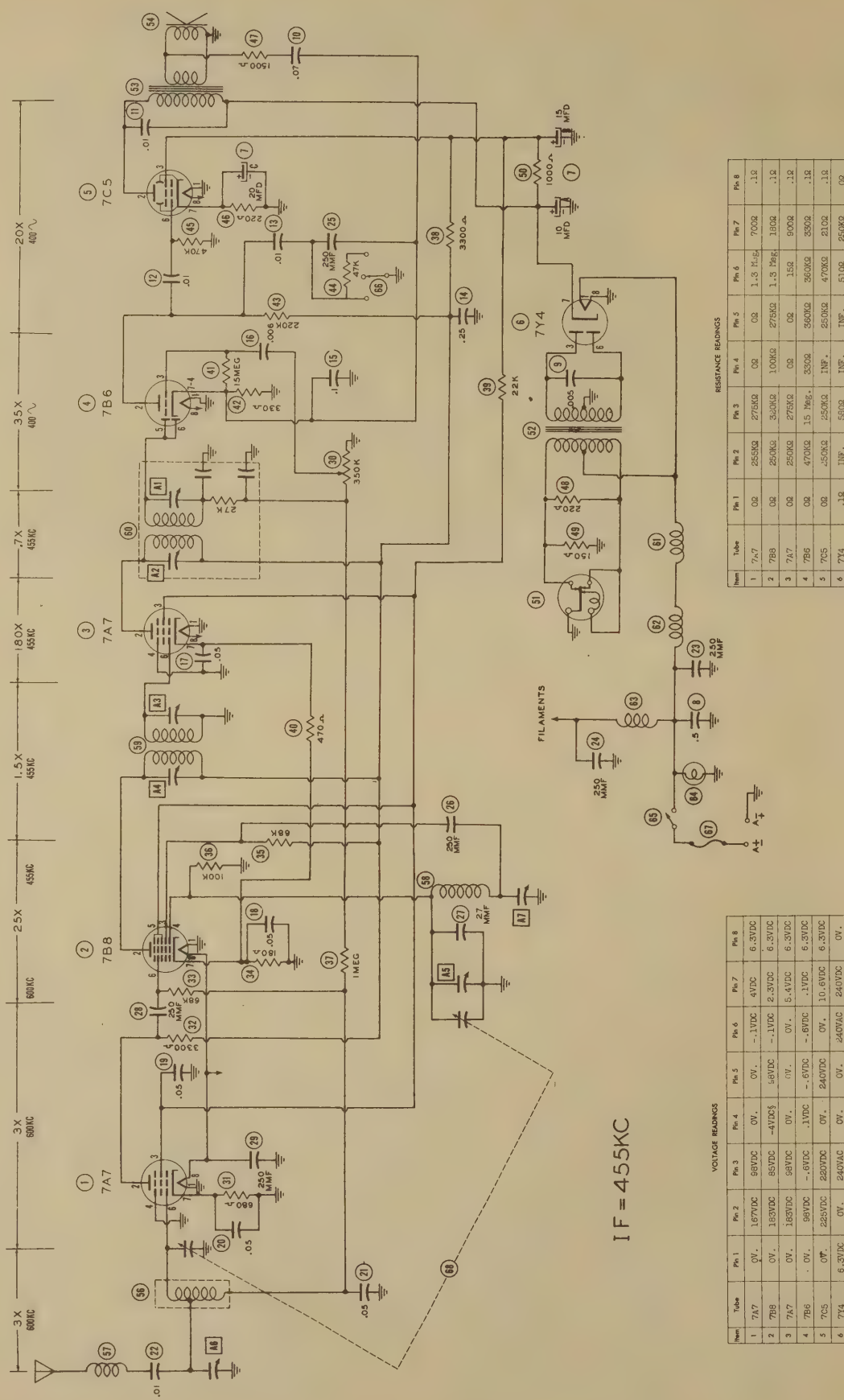
ITEM No.	PART NAME	PHILCO PART No.	NOTES
65	On-Off Switch	85-0112	
66	Tone Switch	77-0733	
67	Fuse	63-0077	15 AMP. (13-418mF, 13-418mF)
68	2 Gang Var. Cap	77-0545	*Ant. Adj.
A6	Trimmer	63-0048	Osc. Adj.
A7	Padder	55-1194	
	Lial	57-1889	
	Pointer		

CHASSIS—BOTTOM VIEW



PHILCO MODEL
UNG-400

PHILCO MODEL
UNG-400



IF = 455KC

VOLTAGE READINGS

Pin	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	OV.	1.67VDC	OV.	OV.	OV.	-1.1VDC	4VDC	6.3VDC
2	7B8	OV.	1.83VDC	85VDC	-4VDC	4VDC	-1VDC	2.3VDC	6.3VDC
3	7A7	OV.	1.83VDC	85VDC	OV.	OV.	OV.	5.4VDC	6.3VDC
4	7B6	OV.	89VDC	-6VDC	.1VDC	.1VDC	-6VDC	.1VDC	6.3VDC
5	7C5	OV.	225VDC	225VDC	OV.	240VDC	OV.	10.6VDC	6.3VDC
6	7Y4	6.3VDC	OV.	240VDC	OV.	OV.	240VDC	240VDC	OV.

TAKEN WITH VACUUM TUBE VOLTMETER.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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RESISTANCE READINGS

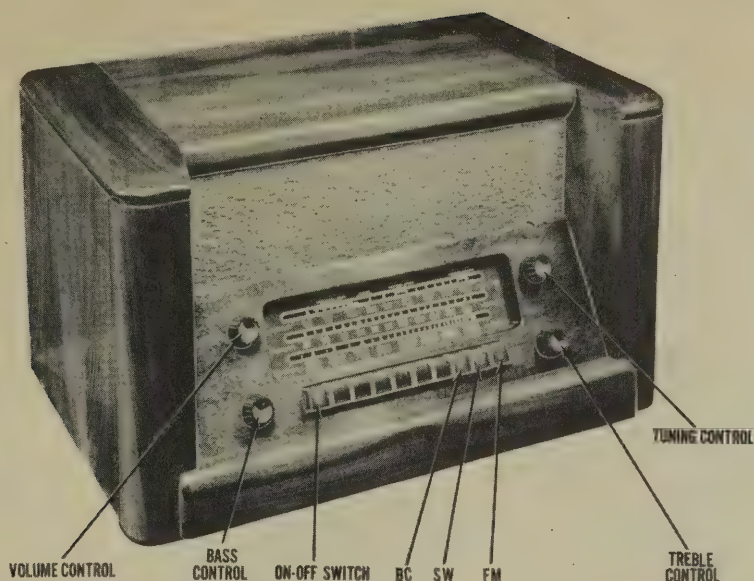
Pin	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	OV.	OV.	275KΩ	OV.	OV.	1.3 MΩ	700Ω	.1Ω
2	7B8	OV.	OV.	250KΩ	100KΩ	275KΩ	1.3 MΩ	180Ω	.1Ω
3	7A7	OV.	OV.	275KΩ	OV.	OV.	15Ω	900Ω	.1Ω
4	7B6	OV.	OV.	470KΩ	15 MΩ	350Ω	360KΩ	350Ω	.1Ω
5	7C5	OV.	OV.	250KΩ	1MΩ	250KΩ	470KΩ	210Ω	.1Ω
6	7Y4	.1Ω	1MΩ	500Ω	1MΩ	1MΩ	510Ω	250KΩ	OV.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4720-23

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by connecting negative (-) 3 volts to the AVC line.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measurements are at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 6.3 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



PHILCO MODEL 48-482

TRADE NAME	Philco, Model 48-482
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC Operated Multi-Band AM-FM Superheterodyne Receiver with Loop Antenna
TUBES (NINE)	Types, 7W7 FM RF Amp., 7F8 Converter, 7H7 1st IF Amp., 7B7 2nd IF Amp., 7H7 3rd IF Amp., FM1000 FM Det., 7B6 or 6SQ7GT Det.-AVC-AF., 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-120 Volts AC
TUNING RANGE—BROADCAST	540-1720KC
	RATING .60 Amp. @ 117 Volts AC
	SHORT WAVE 9.3-15.5MC FREQ. MOD. 88-108MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer 3-5/16" from left edge of dial back plate.
 Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
 Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
 When complete alignment must be made AM alignment must be done first. If FM alignment is not necessary then AM only may be done.

AM ALIGNMENT

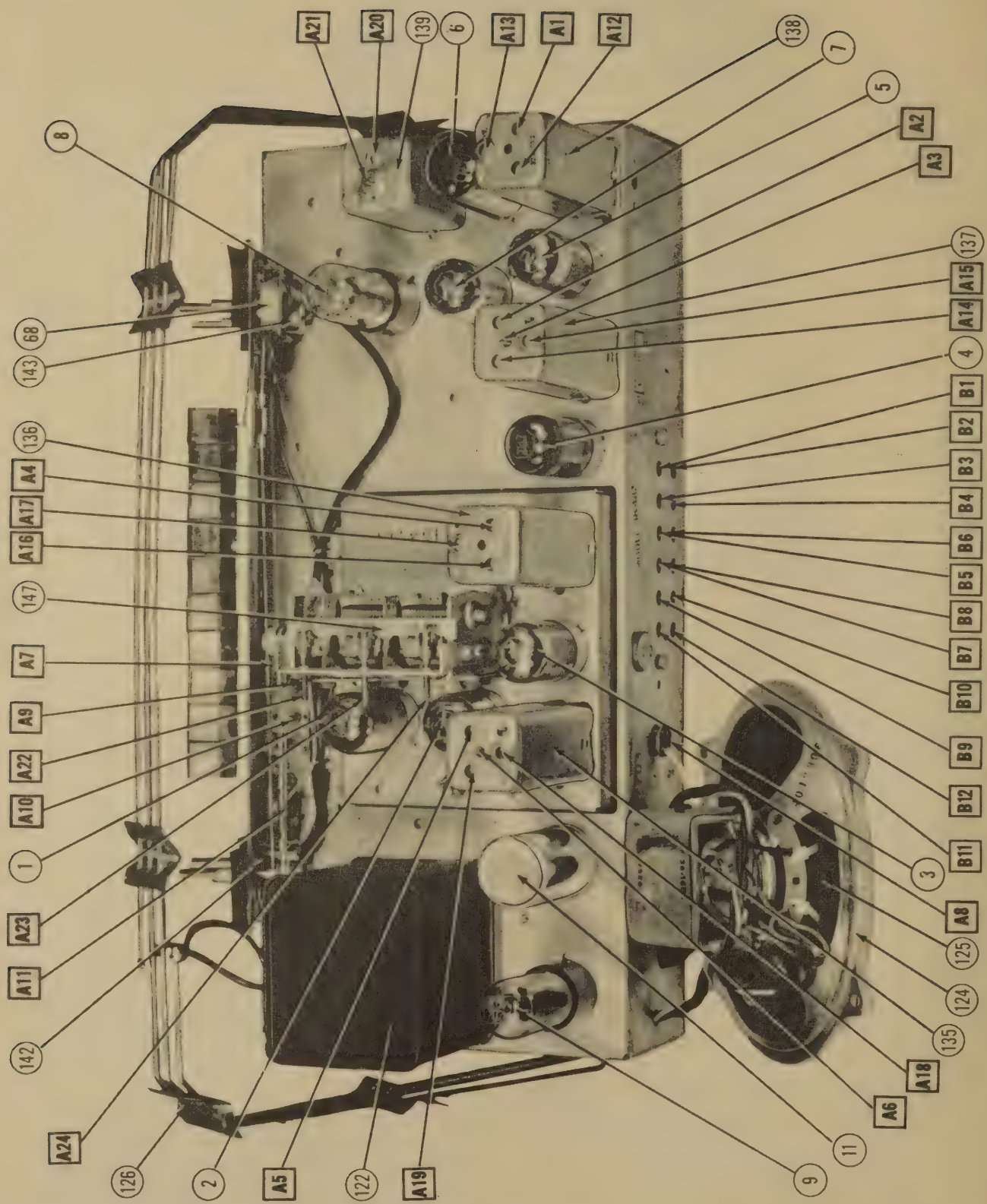
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to front stator of tuning cap. Low side to chassis.	455KC	BC	Tuning cap. fully open.	From terminal 3 of ant. term. inl strip to chassis.	A1, A2, A3, A4, A5, A6.	Adjust for maximum output in order given once only. Do not repeat.
2	Loop	15MC	SW	9-1/2" from left edge of dial back-plate.	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Tune signal gen. to 15.9MC. If image is not heard tune sig. gen. to 15MC and loosen trimmer until next peak is obtained. Adjust for maximum output and re-check for image.
3	"	"	"	Tune for maximum output.	"	A8	Rock tuning cap. and adjust for maximum output.
4	"	1700KC	BC	9-3/4" from left edge of dial back-plate.	"	A9	Adjust for maximum output
5	"	1500KC	"	Tune for maximum output.	"	A10	" " " "
6	"	580KC	"	"	"	A11	Rock tuning cap. and adjust for maximum output. Repeat Steps 4, 5 & 6 until no further improvement can be made making Step 4 last adjustment.

SEE BACK PAGE FOR FM ALIGNMENT

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		PHILCO PART No.	RMA BASE TYPE	
1	FM RF Amp.	7A7	8B1	
2	Converter	7A7	8BW	
3	1st IF Amp.	7A7	8V	
4	2nd IF Amp.	7A7	8V	
5	3rd IF Amp.	7A7	8V	
6	FM Det.	7A7	8V	
7	Det.-AFC-AF	7A7	8V	
8	Power Output	7A7	8V	
9	Rectifier	7A7	8V	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PHILCO PART No.	MALLORY PART No.	SOLAR PART No.	CORNELL-DUBILIER PART No.	
55	220	60-10245307	MO-237	MO-5-32	SW572	
56	510	500-60-10515307	MO-245	1FM-32	SW575	Osc. Plate Feedback
57	100	500-60-10105407	MO-235	1FM-31	SW571	Osc. Grid Feedback
58	750	500-60-10755307				Osc. Coupling
59	255	500-60-10255307				Fixed Pad.
60	47	500-60-00515307	MO-225	MO-5-45	SW565	RF Coupling
61	510	500-60-10515307	MO-245	MO-5-35	SW575	FM RF Plate Decoupl.
62	510	500-60-10515307	MO-245	MO-5-35	SW575	FM RF Screen Bypass
63	220	500-60-10245307	MO-237	MO-5-32	SW572	1F1. Bypass
64	10	500-60-00105407	MO-215	MO-5-41	SW561	RF Coupling
65	10	500-60-00105407	MO-215	MO-5-41	SW561	Neutralizing
66	255	500-60-10255307				Fixed Pad
67	22	500-60-00205307	MO-220	MO-5-425	SW5025	RF Coupling

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

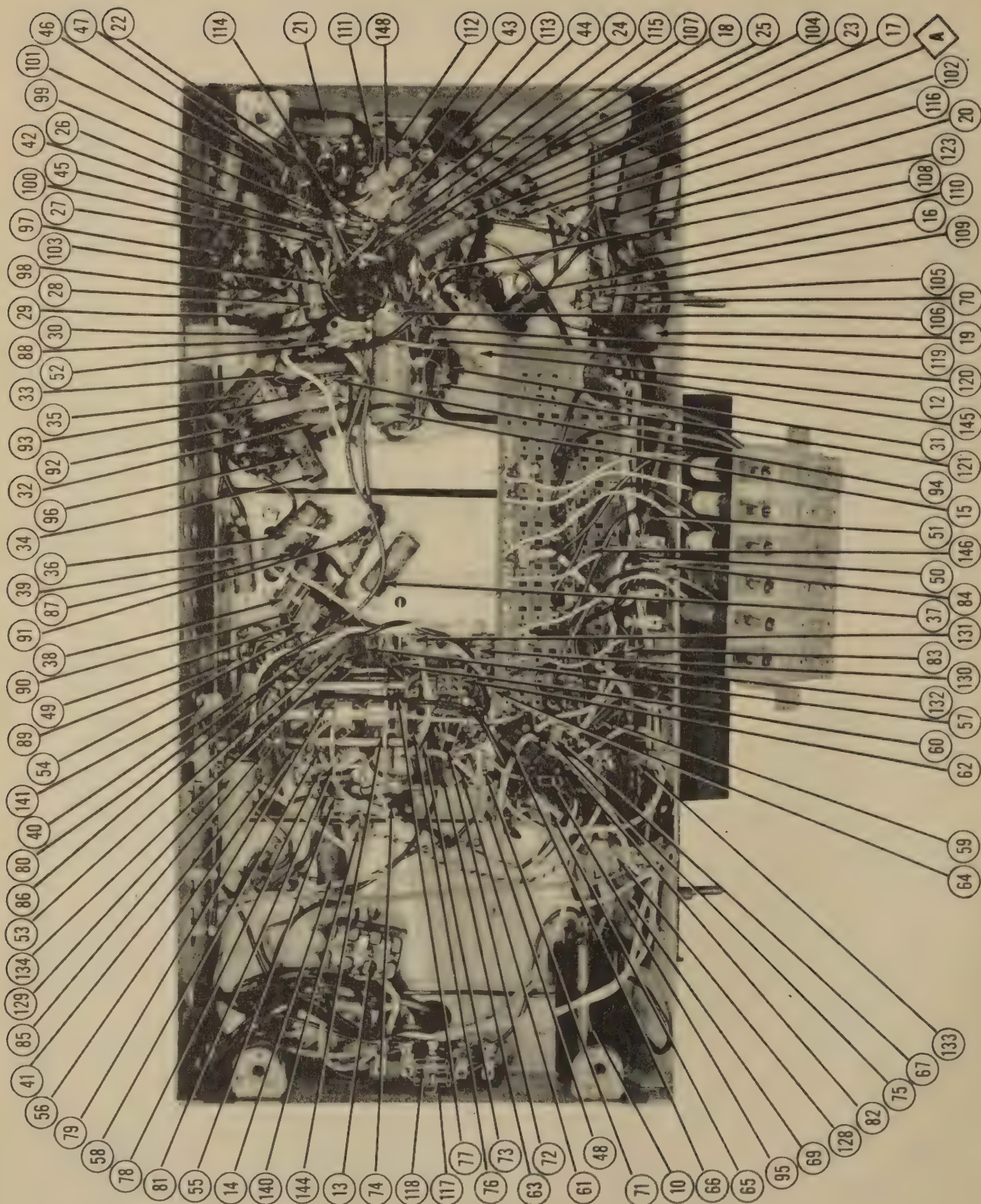
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PHILCO PART No.	MALLORY PART No.	SOLAR PART No.	CORNELL-DUBILIER PART No.	
10	15	30-2568-1	FP143	EL-15	UP44J18	Filter
11A	30	30-2570-1	FP444	EL-420	UP22245	"
12A	10					"
13A	15	30-2552	FP234	EL-151	UP6B38	"
14	100	61-0120	TP410	TC-11	DT6S1	Line Filter
15	100	61-0117	TP457	TC-23	DT6S1	"
16	100	61-0153	TP431	TC-5	DT6D5	"
17	100	61-0153	TP431	TC-5	DT6D5	"
18	100	61-0153	TP431	TC-5	DT6D5	"
19	100	61-0153	TP431	TC-5	DT6D5	"
20	100	61-0153	TP431	TC-5	DT6D5	"
21	100	61-0153	TP431	TC-5	DT6D5	"
22	100	61-0153	TP431	TC-5	DT6D5	"
23	100	61-0153	TP431	TC-5	DT6D5	"
24	100	61-0153	TP431	TC-5	DT6D5	"
25	100	61-0153	TP431	TC-5	DT6D5	"
26	100	61-0153	TP431	TC-5	DT6D5	"
27	100	61-0153	TP431	TC-5	DT6D5	"
28	100	61-0153	TP431	TC-5	DT6D5	"
29	100	61-0153	TP431	TC-5	DT6D5	"
30	100	61-0153	TP431	TC-5	DT6D5	"
31	100	61-0153	TP431	TC-5	DT6D5	"
32	100	61-0153	TP431	TC-5	DT6D5	"
33	100	61-0153	TP431	TC-5	DT6D5	"
34	100	61-0153	TP431	TC-5	DT6D5	"
35	100	61-0153	TP431	TC-5	DT6D5	"
36	100	61-0153	TP431	TC-5	DT6D5	"
37	100	61-0153	TP431	TC-5	DT6D5	"
38	100	61-0153	TP431	TC-5	DT6D5	"
39	100	61-0153	TP431	TC-5	DT6D5	"
40	100	61-0153	TP431	TC-5	DT6D5	"
41	100	61-0153	TP431	TC-5	DT6D5	"
42	100	61-0153	TP431	TC-5	DT6D5	"
43	100	61-0153	TP431	TC-5	DT6D5	"
44	100	61-0153	TP431	TC-5	DT6D5	"
45	100	61-0153	TP431	TC-5	DT6D5	"
46	100	61-0153	TP431	TC-5	DT6D5	"
47	100	61-0153	TP431	TC-5	DT6D5	"
48	100	61-0153	TP431	TC-5	DT6D5	"
49	100	61-0153	TP431	TC-5	DT6D5	"
50	100	61-0153	TP431	TC-5	DT6D5	"
51	100	61-0153	TP431	TC-5	DT6D5	"
52	100	61-0153	TP431	TC-5	DT6D5	"
53	100	61-0153	TP431	TC-5	DT6D5	"
54	100	61-0153	TP431	TC-5	DT6D5	"

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
68A	2 Meg.	33-5535-3	MP451	DI8-139X	T-116	Volume Control
69A	500K	33-5535-3	MP451	DI8-139X	T-116	Attach to 68A per instructions
70A	1 Meg.	33-5535-3	MP451	DI8-139X	T-116	Treble Control
						Attach to 69A per instructions
						Bass Control
						Attach to 70A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
71	1 Meg.	66-5103340	66-5103340	BTS-1 Meg.		Br.-Blk.-Grn. FM-RF Grid
72	100K	66-5103340	66-5103340	BTS-100K		Br.-Blk.-Grn. FM-RF Screen Dropping
73	30K	66-5103340	66-5103340	BTS-30K		Br.-Blk.-Grn. FM-RF Plate Load
74	30K	66-5103340	66-5103340	BTS-30K		Br.-Blk.-Grn. FM-RF Decoupling
75	4.7 Meg.	66-5475340	66-5475340	BTS-4.7 Meg.		Yl.-Vl.-Grn. AVC Network
76	4.7 Meg.	66-5475340	66-5475340	BTS-4.7 Meg.		Yl.-Vl.-Grn. AVC Network
77	100	66-2223340	66-2223340	BTS-100		Br.-Blk.-Blk. Parastic Suppressor
78	220K	66-2223340	66-2223340	BTS-220K		Red-Red-Red Mixer Cathode
79	22K	66-2223340	66-2223340	BTS-22K		Red-Red-Red Oscillator Grid
80	22K	66-2223340	66-2223340	BTS-22K		Red-Red-Red Converter Plate Load
81	22K	66-2223340	66-2223340	BTS-22K		Red-Red-Red Oscillator Plate Load
82	100K	66-1183340	66-1183340	BTS-100K		Br.-Blk.-Br. Parastic Suppressor
83	100K	66-1183340	66-1183340	BTS-100K		Br.-Blk.-Br. Oscillator Cathode
84	10K	66-3475340	66-3475340	BTS-10K		Yl.-Vl.-Grn. Oscillator Cathode
85	47K	66-3475340	66-3475340	BTS-47K		Yl.-Vl.-Grn. Oscillator Plate Decoupling
86	1 Meg.	66-5103340	66-5103340	BTS-1 Meg.		Br.-Blk.-Grn. AVC Network
87	1 Meg.	66-5103340	66-5103340	BTS-1 Meg.		Br.-Blk.-Grn. AVC Network
88	330K	66-4333340	66-4333340	BTS-330K		Br.-Blk.-Grn. 1st IF Cathode
89	100K	66-4103340	66-4103340	BTS-100K		Br.-Blk.-Vl. 1st IF Screen Dropping
90	100K	66-4103340	66-4103340	BTS-100K		Br.-Blk.-Vl. 1st IF Plate Decoupling
91	330K	66-2333340	66-2333340	BTS-330K		Br.-Gray-Br. 2nd IF Cathode
92	100K	66-1183340	66-1183340	BTS-100K		Br.-Gray-Br. 2nd IF Plate Decoupling
93	220K	66-2223340	66-2223340	BTS-220K		Red-Red-Red 2nd IF Cathode-See Note 1
94	330K	66-2333340	66-2333340	BTS-330K		Or.-Or.-Red 2nd IF Plate Decoupling
95	100K	66-4103340	66-4103340	BTS-100K		Br.-Blk.-Vl. 2nd IF Screen Bleeder
96	100K	66-4103340	66-4103340	BTS-100K		Br.-Blk.-Vl. 2nd IF Screen Dropping
97	100K	66-4103340	66-4103340	BTS-100K		Br.-Blk.-Vl. 2nd IF Screen Dropping
98	100K	66-1183340	66-1183340	BTS-100K		Br.-Gray-Br. 3rd IF Cathode



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING RESISTANCE WATTS	REPLACEMENT DATA		IDENTIFICATION CODES
		PHILCO PART No.	IRC PART No.	
99	3300Ω	66-2333340	ETS-3300	Or.-Or.-Red 3rd IF Plate Decoupling
100	82KΩ	66-3923340	ETS-82K	Gray-Red-Or. 3rd IF Screen Dropping
101	470KΩ	66-3473340	ETS-47K	Yl.-Yl.-Or. Diode Rf Filter
102	270KΩ	66-4273340	ETS-270K	Red-Yl.-Yl. Diode Load
103	1 Meg.	66-5103340	ETS-1 Meg.	Br.-Bk.-Grn. AVC Network
104	100KΩ	66-4103340	ETS-100K	Br.-Bk.-Yl. Tone Compensation
105	4.7Ω	66-9474380	EW-1-4.7	Yl.-Yl.-Cold Feedback
106	1 Meg.	66-5103340	ETS-1 Meg.	Br.-Bk.-Grn. AF Grid
107	220KΩ	66-4223340	ETS-220K	Red-Red-Yl. AF Plate Load
108	330KΩ	66-4333340	ETS-330K	Or.-Yl.-Output Grid
109	100Ω	66-1103340	EW-1-100	Or.-Bk.-Br. Feedback
110	33Ω	66-3333340	ETS-33K	Or.-Or.-Or. Tone Compensation
111	22Ω	66-0223340	EW-2-22	Red-Red-Bk. Parasitic Suppressor
112	15KΩ	66-3153340	ETS-15K	Br.-Grn.-Or. FM Detector Grid
113	470KΩ	66-3473340	ETS-47K	Yl.-Yl.-Or. FM Detector Plate Decoupling
114	56KΩ	66-3563340	ETS-56K	Grn.-Blue-Or. FM Detector Screen Dropping
115	15KΩ	66-3153340	ETS-15K	Br.-Grn.-Or. FM Detector Decoupling
116	100KΩ	66-4103340	ETS-100K	Br.-Bk.-Yl. Tone Compensation
117	15KΩ	66-3153340	ETS-15K	Br.-Gray-Or. Decoupling
118	15KΩ	66-3153340	ETS-15K	Or.-Grn.-Or. Decoupling
119	560KΩ	66-4563340	ETS-560K	Grn.-Blue-Yl. Bias Network
120	220KΩ	66-4223340	ETS-220K	Red-Red-Yl. Bias Network
121	13KΩ	66-3133340	ETS-13K	Br.-Gray-Or.

Note 1-Some models use 3300Ω in this application. IRC replacement same as Item 94.

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.
126	Loop Ant.	0Ω	0Ω	76-2237	
127	FM Ant.	1.5Ω	1.5Ω	32-4049	
128	BC Ant. Coil	0Ω	0Ω	32-4050	
129	SW Ant. Coil	0Ω	0Ω	32-3993	
130	FM Ant. Coil	0Ω	0Ω	32-3992	
131	FM RF Coil	0Ω	0Ω	32-4019-2	14-1040
132	BC Osc. Coil	0Ω	0Ω	32-3996	
133	SW Osc. Coil	0Ω	0Ω	32-3994	
134	FM Osc. Coil	0Ω	0Ω	32-4020-1	
135	AM 1st IF	1.2Ω	1.2Ω	32-4001	Items 135A & 135B in same can
136	AM 2nd IF	1.2Ω	6.5Ω#	32-4002	Items 136A & 136B in same can
137	AM 3rd IF	100Ω	14Ω#	32-4003-2	Items 137A & 137B in same can
138	AM 4th IF	60Ω	9Ω	32-4004	
139	FM Det. Trans	1Ω	0Ω	32-4089	
140	RF Choke	0Ω	0Ω	32-4111	
141	"	0Ω	0Ω	32-3352	
142	"	0Ω	0Ω		

#Includes bot.; pri. #Includes both sec.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PHILCO PART No.	PHILCO PART No.	
142	Bayonet	7.5	0.2A	White	34-2040	34-2040	Type 51
143	"	"	"	"	"	"	"

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
144	Band Switch	76-2211	
145	On-Off Switch	42-1714	(Includes on-off switch)
146	Pushbutton Assy	42-1774	AM (18-520 MTF, 18-520 MTF)
147	Tuning Cap.	31-2694	
A7	Trimmer Strip	31-6477	(SW Osc. Adj.)
A9	Trimmer	31-6473-2	(BC Osc. Adj.)
A10	Trimmer	31-6473-3	(SW Ant. Adj.)
A8	Padder	56-3179-2	(BC Osc. Adj.)
A11	Dial Pointer		

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING RESISTANCE WATTS	REPLACEMENT DATA		IDENTIFICATION CODES
		PHILCO PART No.	IRC PART No.	
99	3300Ω	66-2333340	ETS-3300	Or.-Or.-Red 3rd IF Plate Decoupling
100	82KΩ	66-3923340	ETS-82K	Gray-Red-Or. 3rd IF Screen Dropping
101	470KΩ	66-3473340	ETS-47K	Yl.-Yl.-Or. Diode Rf Filter
102	270KΩ	66-4273340	ETS-270K	Red-Yl.-Yl. Diode Load
103	1 Meg.	66-5103340	ETS-1 Meg.	Br.-Bk.-Grn. AVC Network
104	100KΩ	66-4103340	ETS-100K	Br.-Bk.-Yl. Tone Compensation
105	4.7Ω	66-9474380	EW-1-4.7	Yl.-Yl.-Cold Feedback
106	1 Meg.	66-5103340	ETS-1 Meg.	Br.-Bk.-Grn. AF Grid
107	220KΩ	66-4223340	ETS-220K	Red-Red-Yl. AF Plate Load
108	330KΩ	66-4333340	ETS-330K	Or.-Yl.-Output Grid
109	100Ω	66-1103340	EW-1-100	Or.-Bk.-Br. Feedback
110	33Ω	66-3333340	ETS-33K	Or.-Or.-Or. Tone Compensation
111	22Ω	66-0223340	EW-2-22	Red-Red-Bk. Parasitic Suppressor
112	15KΩ	66-3153340	ETS-15K	Br.-Grn.-Or. FM Detector Grid
113	470KΩ	66-3473340	ETS-47K	Yl.-Yl.-Or. FM Detector Plate Decoupling
114	56KΩ	66-3563340	ETS-56K	Grn.-Blue-Or. FM Detector Screen Dropping
115	15KΩ	66-3153340	ETS-15K	Br.-Grn.-Or. FM Detector Decoupling
116	100KΩ	66-4103340	ETS-100K	Br.-Bk.-Yl. Tone Compensation
117	15KΩ	66-3153340	ETS-15K	Br.-Gray-Or. Decoupling
118	15KΩ	66-3153340	ETS-15K	Or.-Grn.-Or. Decoupling
119	560KΩ	66-4563340	ETS-560K	Grn.-Blue-Yl. Bias Network
120	220KΩ	66-4223340	ETS-220K	Red-Red-Yl. Bias Network
121	13KΩ	66-3133340	ETS-13K	Br.-Gray-Or.

Note 1-Some models use 3300Ω in this application. IRC replacement same as Item 94.

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA		MERIT PART No.
		PHILCO PART No.	STANCOR PART No.	
122	117V AC 150V CT 5.0V AC 8.1V AC @ 5.6A @ .0734 @ 2.0A @ 3.0A	32-8281	P-4079*	P-3151*

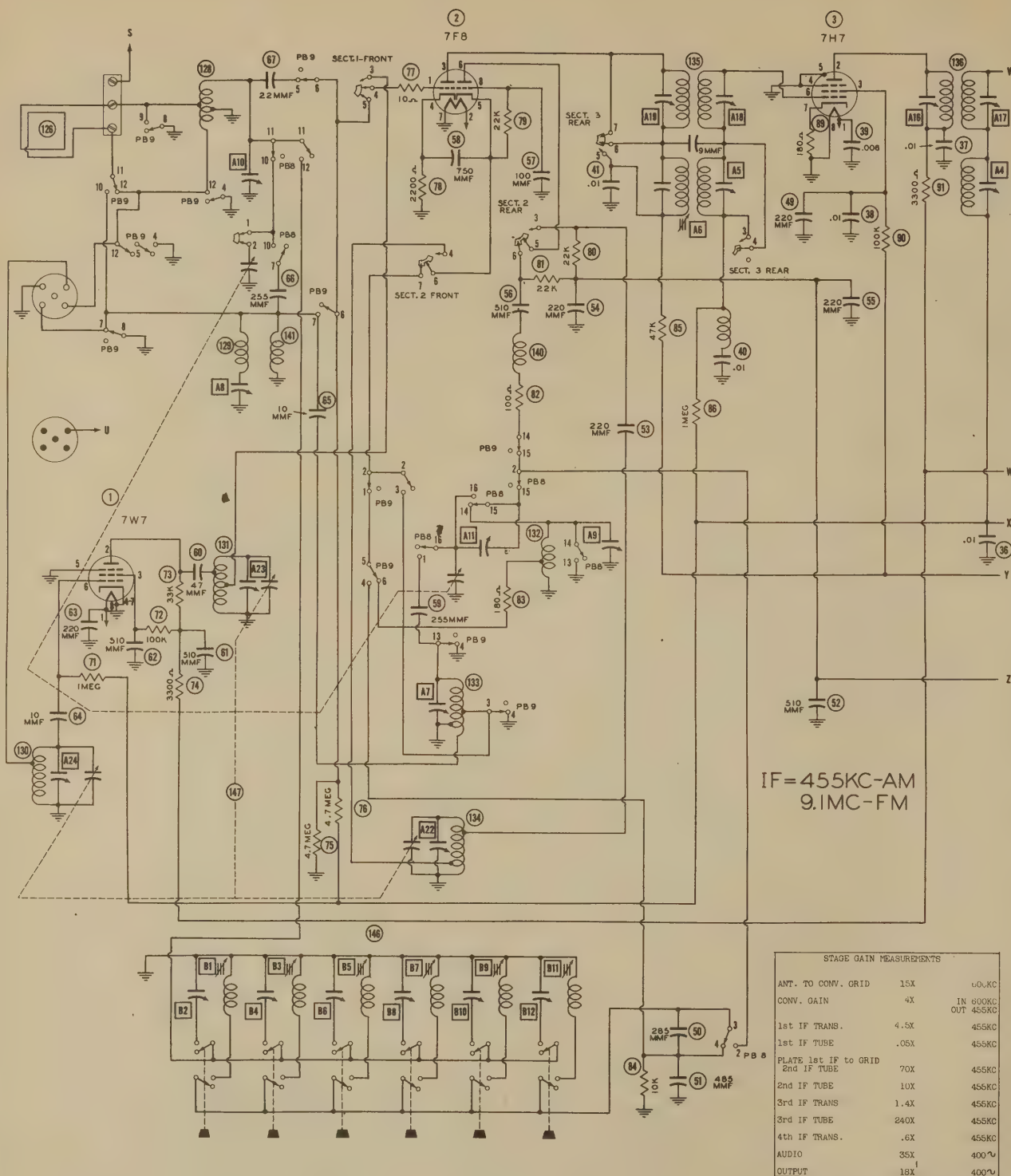
*Drill new mounting holes and add series resistor to reduce plate voltage.

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA		INSTALLATION NOTES
		PHILCO PART No.	STANCOR PART No.	
123	4100Ω 5.3Ω 4855Ω .9Ω	32-8249	A-3823	T22S37 A-2901

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		PHILCO PART No.	JENSEN PART No.	
124	FIELD RES. VC 14P. 600Ω 3.3Ω	36-1608		
125	CODE DIA. VC DIA. 4-7/8" x 3/4"	NOT READILY REPLACEABLE	USE COMPLETE SPEAKER UNIT	



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4720-24

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

SCOPE PATTERNS

DRIVE CORD DIAL

FIG. C

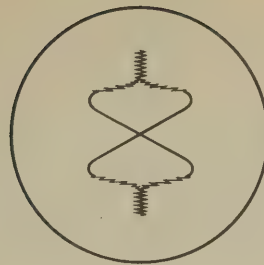


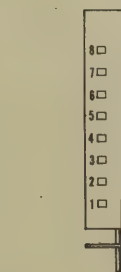
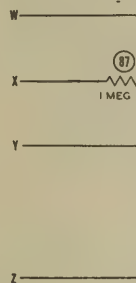
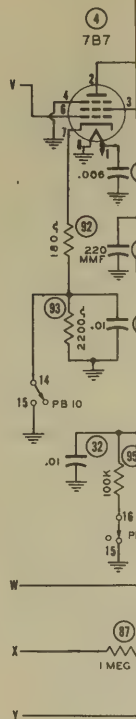
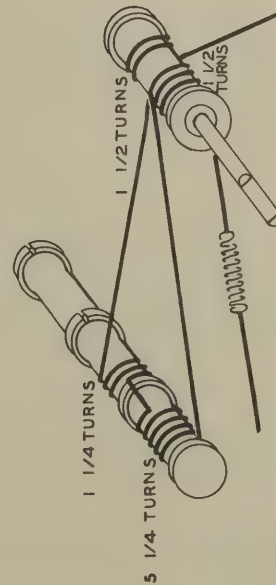
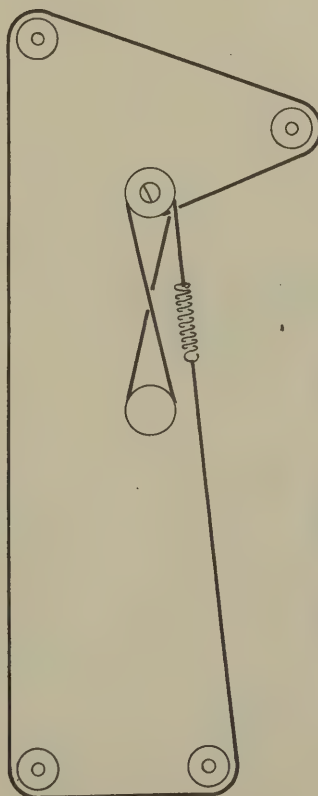
FIG. B



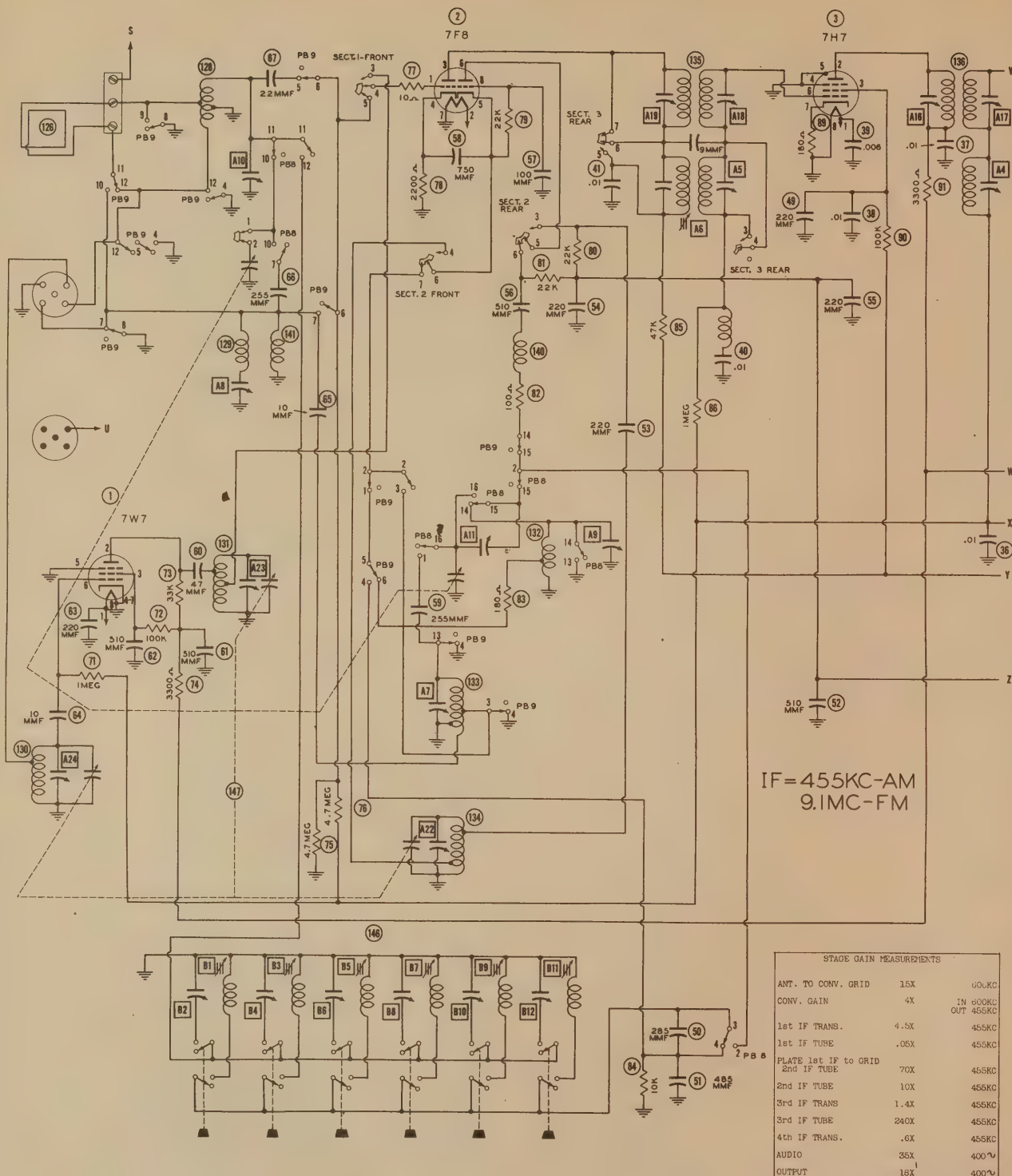
FIG. A



TUNING GANG FULLY CLOSED



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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7W7	6.1VAC	108VDC	55VDC	OV.	OV.	-.6VDC	OV.	OV.
2	7F8	-.1VDC	6.1VAC	138VDC	3.2VDC	.8VDC	130VDC	OV.	-2.6VDC
3	7H7	6.1VAC	250VDC	95VDC	OV.	OV.	OV.	.9VDC	OV.
4	7B7	6.1VAC	260VDC	115VDC	OV.	OV.	-.2VDC	8VDC	OV.
5	7H7	6.1VAC	250VDC	108VDC	OV.	OV.	OV.	1.6VDC	OV.
6	FM1000	6.1VAC	-.3VDC	OV.	215VDC	48VDC	1.6VDC	OV.	OV.
7	7B6	6.1VAC	111VDC	-.6VDC	OV.	-.5VDC	-.23VDC	OV.	OV.
8	6V6GT	OV.	6.1VAC	250VDC	265VDC	-10VDC	INF.	OV.	OV.
9	5Y3GT	6.1VAC	265VDC	OV.	290VAC	OV.	280VAC	6.1VDC	265VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7W7	.1Ω	135KΩ	205KΩ	0Ω	0Ω	3.2 Meg.	0Ω	0Ω
2	7F8	12Ω	.1Ω	170KΩ	2KΩ	180Ω	140KΩ	0Ω	22KΩ
3	7H7	.1Ω	105KΩ	220KΩ	0Ω	0Ω	3.5 Meg.	200Ω	0Ω
4	7B7	.1Ω	105KΩ	200KΩ	0Ω	0Ω	2.5 Meg.	27KΩ	0Ω
5	7H7	.1Ω	105KΩ	180KΩ	0Ω	0Ω	15Ω	190Ω	0Ω
6	FM1000	.1Ω	15KΩ	8Ω	160KΩ	120KΩ	300Ω	0Ω	0Ω
7	7B6	.1Ω	320KΩ	1.2 Meg.	0Ω	1.2 Meg.	280KΩ	0Ω	0Ω
8	6V6GT	0Ω	.1Ω	100KΩ	100KΩ	560KΩ	INF.	0Ω	0Ω
9	5Y3GT	.1Ω	100KΩ	INF.	700Ω	INF.	710Ω	.1Ω	100KΩ

‡ TAKEN WITH VACUUM TUBE VOLTMETER.

† VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

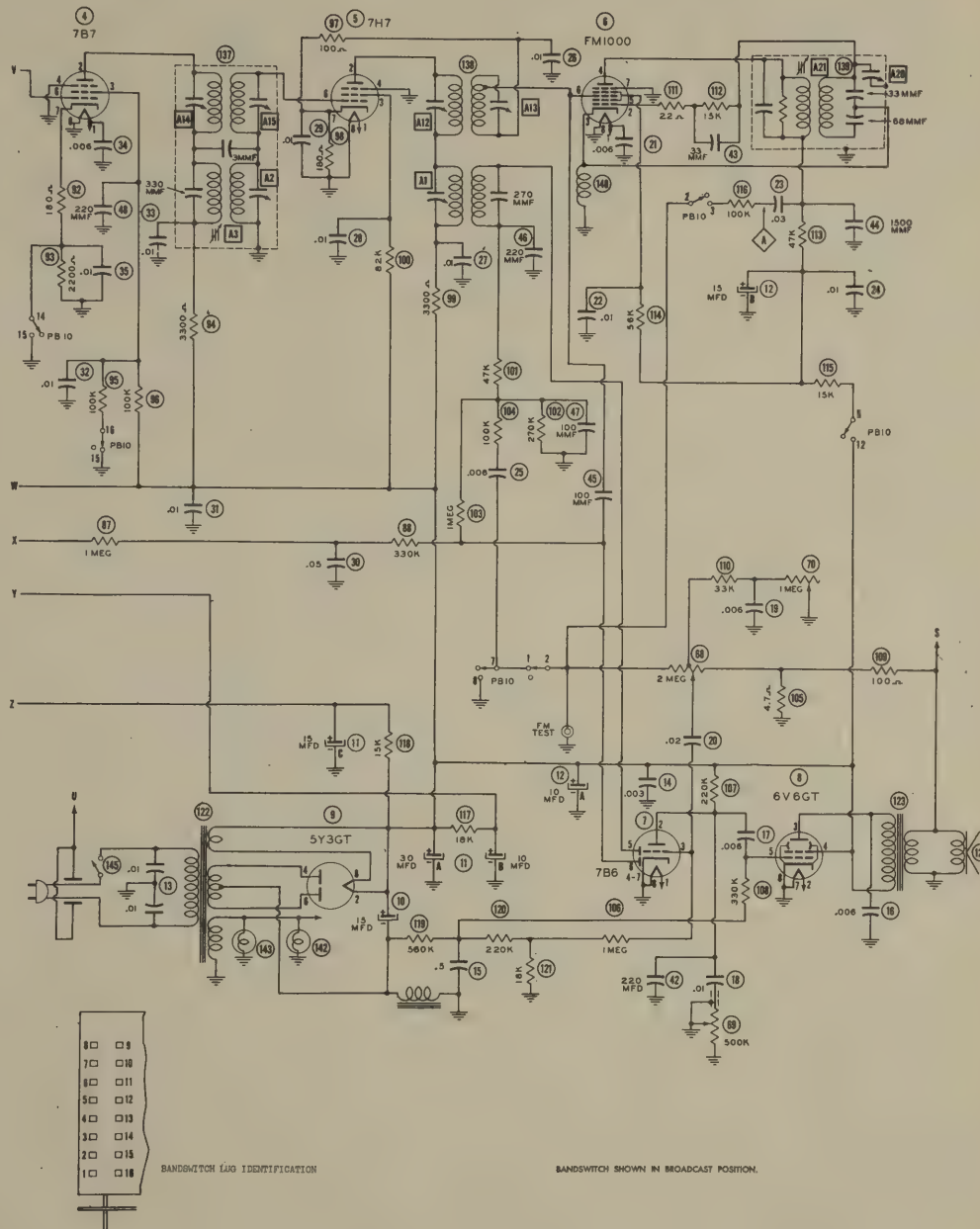
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

PUSHBUTTON ADJUSTMENTS

Ranges of pushbuttons reading from left to right are 540-1000KC, 600-1200KC, 650-1300KC, 850-1500KC, 900-1600KC, 900-1600KC.

- Make up a list of stations desired to be set up ranging from low to high frequency stations, making certain each station falls within range of its button.
- Push in button next to off button and allow receiver to warm up for about 15 minutes.
- Adjust B1 to tune in first station on list. Check for correct station by pushing in BC button and manually tune in desired station.
- Returning to original button adjust B2 for maximum volume.
- Set up the remaining buttons by following the same procedure outlined above adjusting B3, B5, B7, B9 & B11 to tune in stations, and B4, B6, B8, B10 and B12 for maximum volume.

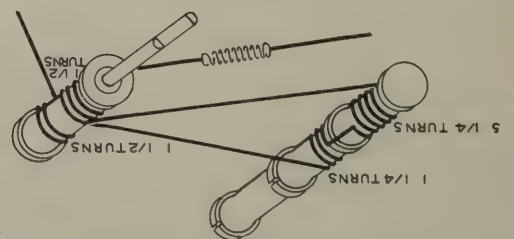


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SCOPE PATTERNS

DIAL CORD DRIVE



TUNING GANG FULLY CLOSED

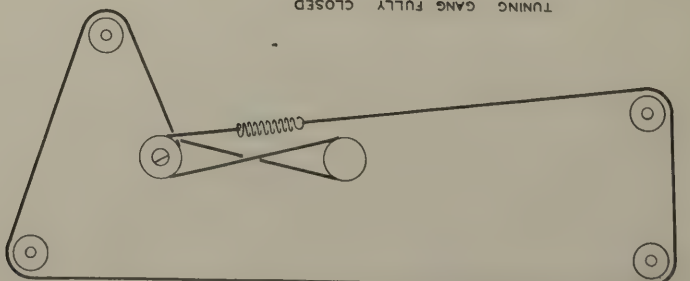


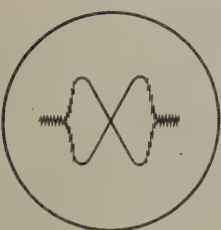
FIG. A



FIG. B



FIG. C



In Step 19 of output meter alignment and Step 16 of scope alignment connect a dipole to pins 1 & 2 of FM Ant. socket. Connect a dipole to output of signal generator and space the two dipoles several feet apart. Each dipole may consist of two 30 inch lengths of wire.

FM ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

dellection.

Frequency modulate signal with 60V, 450K sweep. Use 120V sawtooth voltage for horizontal deflection.

FM ALIGNMENT USING AM SIGNAL GENERATOR AND OUTPUT METER

[illegible]

ANTENNA	SIGNAL GENERATOR	COUNTING	SIGNAL GENERATOR	SWITCH BAND	RADIO DIAL	OUTPUT	ADJUST	REMARKS
7	.1 NPD.	High side to FM RF coil (131)	9.1MC	Fullly closed	Turning cap.	"	A12	Ground Pin 2 of PM1000 to chassis. Connect lead network (see pre-alignment notes), from high side of secondary of FM 4th trans. (138B). Adjust for maximum output.
8	.1 NPD.	"	"	"	"	"	A13	Connect network from Pin 2 (plate) 7M7 grid if tube A13 for maximum output.
9	.1 NPD.	"	"	"	"	"	A14	Connect network from Pin 6 (grid) 7M7 grid if tube A13 for maximum output.
10	.1 NPD.	"	"	"	"	"	A15	Connect network from Pin 2 (plate) 7M7 grid if tube A13 for maximum output.
11	.1 NPD.	"	"	"	"	"	A16	Connect network from Pin 6 (grid) 7M7 grid if tube A16 for maximum output.
12	.1 NPD.	"	"	"	"	"	A17	Connect network from Pin 2 (plate) 7M7 grid if tube A16 for maximum output.
13	.1 NPD.	"	"	"	"	"	A18	Leave network as in last step, adjust A18, A19 for maximum output.
14	.1 NPD.	High side to Pin 6 (grid) 7M7 grid (modulated side to chassis, if low side to chassis.	9.1MC	"	"	"	A20	Connect jumper from Pin 4 (plate) PM1000 tube to junction of resistor 113 and capacitors 23 & 44
15	.1 NPD.	"	"	"	"	"	A21	Remove jumper from Pin 2 (plate) 7M7 grid, adjust A20 for zero beat.
16	.1 NPD.	High side to Pin 2 (yellow lead) of PM 4th aerial socket. Low side to chassis.	10.5MC	8-5/8" from left end of dial back-plate.	"	"	A22	Connect short from Pin 2 of PM1000 tube to chassis. Adjust A22 for maximum output.
17	.1 NPD.	"	88MC	2-1/2" from left edge of dial back-plate.	"	"	FM 08C	Adjust per pre-alignment notes. Repeat Steps 16 & 17 until no further improvement can be made.
18	.1 NPD.	"	10.5MC	Tune for maximum output.	"	"	A23	Rock tuning cap. and adjust for maximum output.
19	Dipole	See pre-alignment notes.	92MC	"	"	"	A24	Rock tuning cap. and adjust for maximum output.
20	Dipole	"	"	"	"	"	FM RF coil (130) & Ant. (131)	Adjust per pre-alignment notes. Repeat Steps 18, 19 & 20 until no further improvement can be made.

FOR AM ALIGNMENT SEE FRONT PAGE

PHOTOFACT* Folder

CHANCELLOR MODEL 35P
BATTERY-LINE OPERATED

CHANCELLOR MODEL 35P
BATTERY-LINE OPERATED



CHANCELLOR MODEL 35P
BATTERY-LINE OPERATED

CHANCELLOR MODEL 35P

TRADE NAME Chancellor, Model 35P
MANUFACTURER Radionic Equipment Co., 170 Nassau St., N.Y. 7, N.Y.
TYPE SET Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR) Types, 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3Q4 Power Output
POWER SUPPLY 110-120 Volts AC-DC or 7½ Volt "A" Supply & 90 Volt "B" Supply
RATING .160 Amp. @ 117 Volts AC or 51 MA @ 7.5 Volts DC & 15 MA @ 90 Volts DC
TUNING RANGE—BROADCAST 540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with the low side of the signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to stator of rear section of tuning capacitor. Low side to chassis.	456KC	Tuning capacitor fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MTF to reduce hum modulation.
2		Loop	1500KC	Second mark from left end of dial backplate.	"	A5	Adjust for maximum output.
3		"	"	Tune for maximum output.	"	A6	" " " "

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DATE 12/47 SET #30 FOLDER #4720-25

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

CHANCELLOR MODEL 35P
BATTERY-LINE OPERATED

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		CHANCELLOR PART No.	RMA BASE TYPE	
1	Converter	1R5	7AT	
2	IF Amp	1R4	6AR	
3	Det.-AVC-AF	1R5	6AU	
4	Power Output	334	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		CHANCELLOR PART No.	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT		MALLORY PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	
5A	60	150		UP5515	DY-804020-150	TEL-26	■ Filter	
B	60	150		BR255		TA-525	▲ Fil. Bypass	
C	25	50		BR252A		TC-15	Fil. Bypass	
6	25	25		DT485	M-25-25	TC-15	Line Filter	
7	.05	200	TC26	DT6D5	MFH-4-05	TC-25	Output Plate Bypass	
8	.005	400	TP408	DT6D5	S-6-005	TC-25	Fil. Bypassing	
9	.1	200	TP428	DT4P1	S-4-1	TC-1	Fil. Bypass	
10	.001	400	TP404	DT6D1	S-6-001	TC-21	Audio Coupling	
11	.02	200	TP423	DT4S2	S-4-02	TC-12	AF Plate Decoup.	
12	.02	400	TP423	DT4S2	S-4-02	TC-12	AF Screen Bypass	
13	.005	400	TP408	DT6D5	S-6-005	TC-25	Audio Coupling	
14	.02	400	TP423	DT4S2	S-4-02	TC-12	AVC Filter	
15	.05	200	TP-26	DT4S5	S-4-05	TC-15	Fil. Bypass	
16	.001	400	TP404	DT6D1	S-6-001	TC-21	Ext. Ant. Isolation	
17	.02	400	TP423	DT4S2	S-4-02	TC-12	Osc. Anode Decoup.	
18	100	500	NC235	SW571	M.5-31	1FM-31	AF Plate Bypass	
19	100	500	NC235	SW571	M.5-31	1FM-31	Diode Filter	
20	11	500	NCE215	SR591	MOS-5-41	TS-41	Fixed Trimmer*	

*Not used in all models.

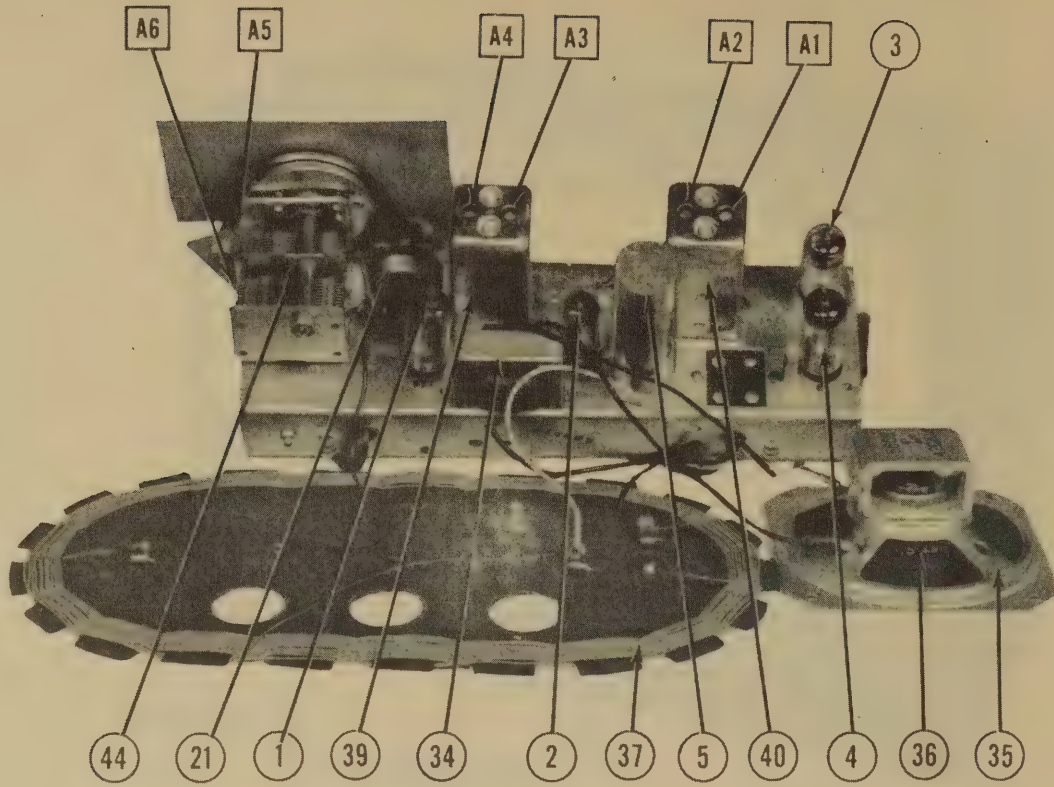
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		CHANCELLOR PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
21A	1 Meg. A Switch	2481	NR53	DI3-137	M-63-Z	Volume Control
B		Not Req.	Not Req.	A	Not Req.	Attach to 21A per instructions
C				42	SW-2A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		CHANCELLOR PART No.	MALLORY PART No.	IRC PART No.	
22	100KΩ			BTS-100K	Br.-Blk.-Yl. Oscillator Grid
23	820KΩ			BTS-820K	Gray-Red-Red Voltage Dropping
24	3.3 Meg.			BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
25	10 Meg.			BTS-10 Meg.	Br.-Blk.-Blue AF Grid
26	4.7 Meg.			BTS-4.7 Meg.	Yl.-Vl.-Grn. AF Screen Dropping
27	470KΩ			BTS-470K	Yl.-Vl.-Vl. AF Plate Load
28	330KΩ			BTS-330K	Or.-Or.-Vl. AF Plate Decoupling
29	2.2 Meg.			BTS-2.2 Meg.	Red-Red-Grn. Output Grid
30	270Ω			BW-4-270	Red-Vl.-Br. Filament String
31	820Ω			BTS-820	Gray-Red-Br. Filament String
32A	600Ω	2177A		AB-750	Filter - See Note
B	1500Ω			AB-1500	Filament String
33	33Ω			BW-1-33	Or.-Or.-Blk. Rectifier Ballast

Note-On IRC replacement set slider at 660Ω from one end.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	CHANCELLOR PART No.	THORDARN PART No.	
34	PRI. SEC. 3.3Ω 31Ω	PRI. SEC. 1.5Ω	1337	T22847	A-2832

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		CHANCELLOR PART No.	JENSEN PART No.	
35	FIELD VC IMP. 3.3Ω	5868	ST-113 Mod. P4-X	
36	COMP DIA. 1/2"	NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

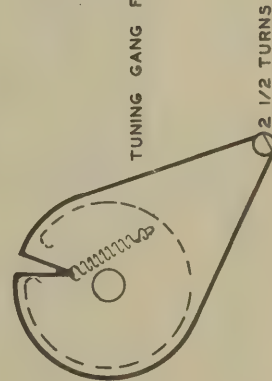
ITEM No.	USE	REPLACEMENT DATA	
		CHANCELLOR PART No.	WEISSNER PART No.
37	Loop Ant.	23100	
38	Osc. Coil	25197	14-1040
39	Input IF	213	16-8688
40	Output IF	303	1C-9886

BATTERIES

ITEM No.	VOLTAGE	CHANCELLOR PART No.	EVEREADY		INSTALLATION NOTES
			"A"	"B"	
41	7.5V "A" 50V "B"			#753	

MISCELLANEOUS

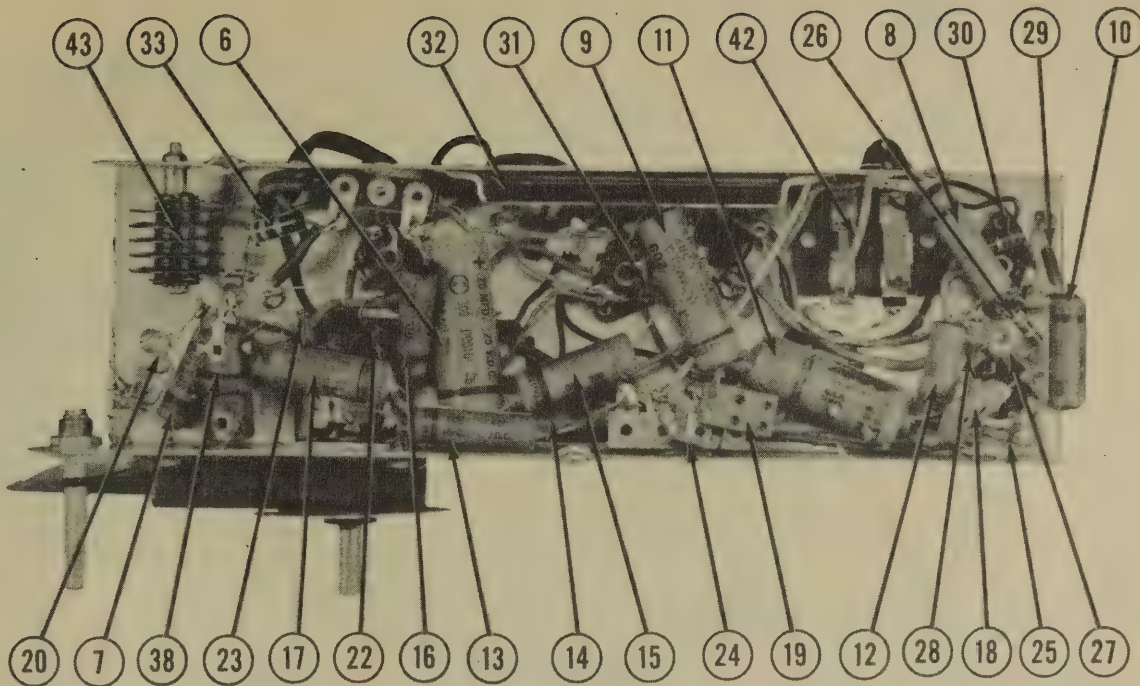
ITEM No.	PART NAME	CHANCELLOR PART No.	NOTES
42	Switch	18132	Power Change-Over
43	Rectifier	1694	Selenium
44	2 Gang Var. Cap		23-460 MTF, 17-188 MTF



TUNING GANG FULLY CLOSED

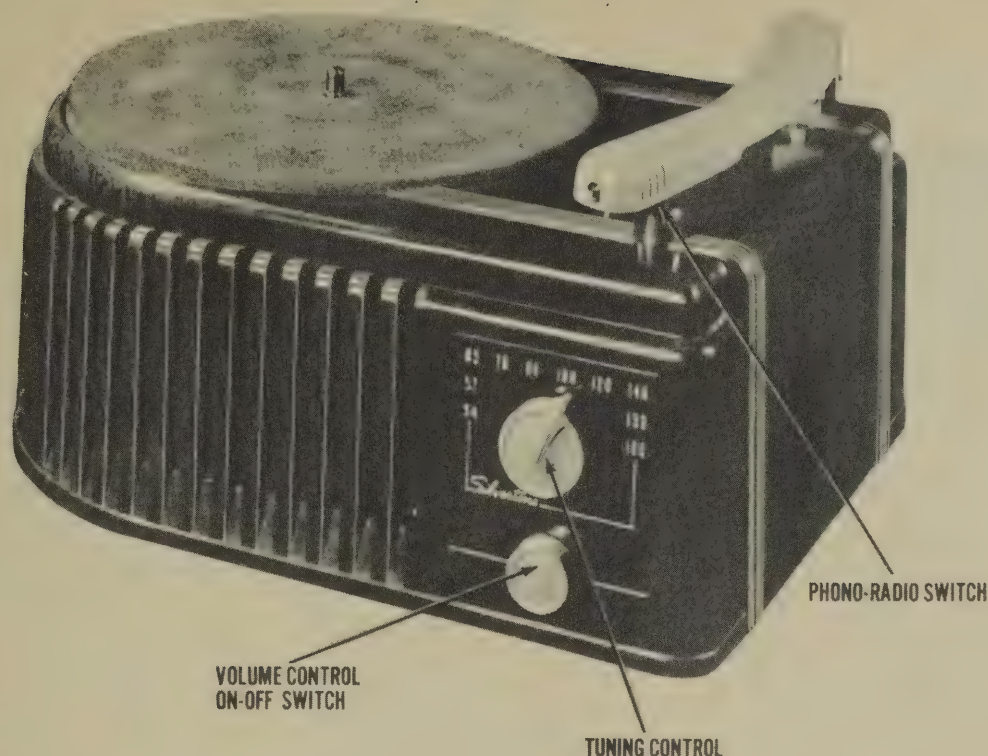
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



CHANCELLOR MODEL 35P
BATTERY-LINE OPERATED

CHANCELLOR MODEL 35P
BATTERY-LINE OPERATED



SILVERTONE MODEL 7070 (Ch. 101.817)

TRADE NAME		Silverstone, Model 7070 (Ch. 101.817)				
SUPPLIER		Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.				
TYPE SET		AC Operated Combination Phono-Radio Superheterodyne Receiver with Loop Antenna				
TUBES (FIVE)		Types, 14Q7 Converter, 14A7 IF Amp., 7C6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.				
POWER SUPPLY		110-120 Volts AC				
TUNING RANGE—BROADCAST		535-1650KC		RATING	.240 Amp. @ 117 Volts AC	
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin 6 (grid) 14Q7. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1, A2, A3	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MMF.	High side to ext. ant. lead. Low side to ext. ground lead.	1650KC	"	"	A4	Adjust for maximum output. Trimmer opposite A4 is a factory adjustment and need not be changed unless receiver cannot be calibrated with A4.
200MMF.	"	1410KC	Tune for maximum output.	"	A5	Adjust for maximum output.

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DATE 12/47 SET #30 FOLDER #4720-26

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

SILVERTONE MODEL
7070 (Ch. 101.817)

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		SILVERTONE PART No.	STANDARD REPLACEMENT	BMA BASE TYPE	
1	Converter	14Q7	14Q7	8AL	
2	IF Amp.	14A7	14A7	8V	
3	Det.-AVC-AF	7C6	7C6	8W	
4	Power Output	50A5	50A5	6AA	
5	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		SILVERTONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	CAP. 40	R61683	TN129	DSB-303	TA-240	Filter - Red
B	150					
C	20					
7	.05					
8	.02					
9	.002					
10	.01					
11	.05					
12	.05					
13	.05					
14	.05					

CONTROLS

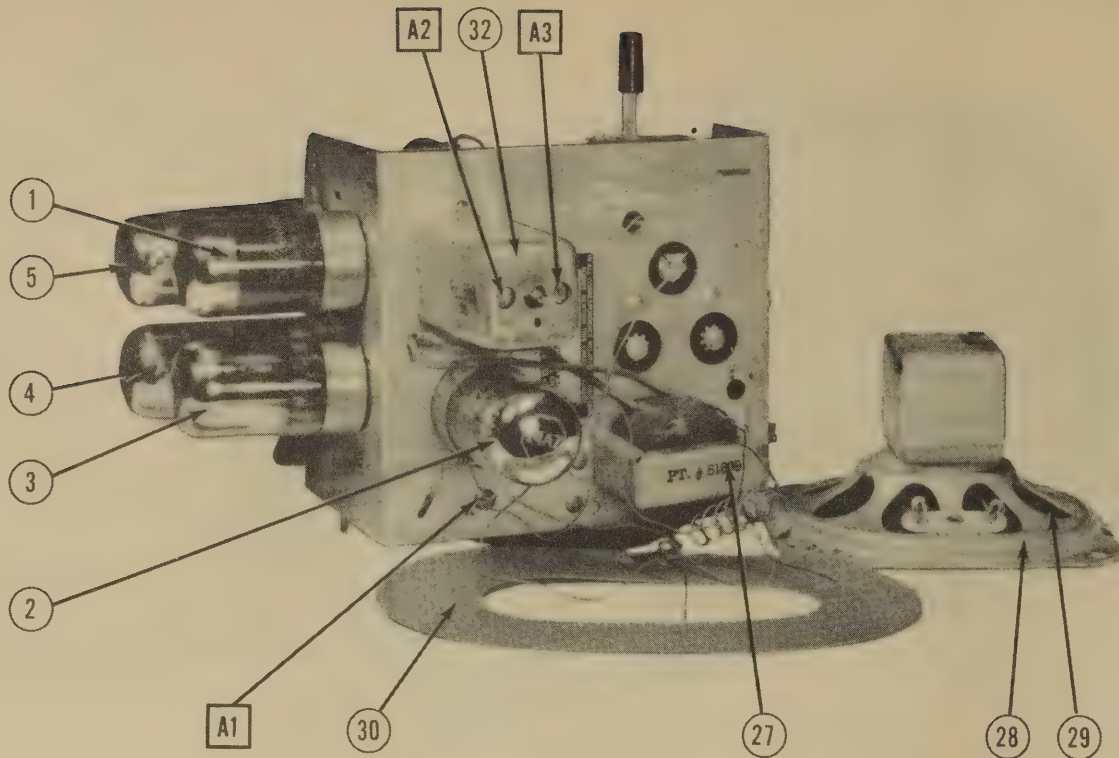
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
15A	500KΩ	R61684	YP48	D13-133	M-60-Z	Volume Control
B	Swart	Not Req.	P26	A	Not Req.	Attach to 15A per Instructions
C	Switch				SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		SILVERTONE PART No.	IRC PART No.	IRC PART No.	
16	22KΩ			BTS-22K	Red-Red-Gr. Oscillator Grid
17	2.2 Meg.			BTS-2.2 Meg.	Red-Red-Grn. AVC Network
18	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. Series Phono
19	470KΩ			BTS-470K	Yl.-Vl.-Yl. Diode RF Filter
20	4.7 Meg.			BTS-4.7 Meg.	Yl.-Vl.-Grn. AF Grid
21	2.2 Meg.			BTS-2.2 Meg.	Red-Red-Grn. AF Plate Load
22	220KΩ			BTS-220K	Red-Red-Yl. Tone Compensation
23	470KΩ			BTS-470K	Yl.-Vl.-Yl. Output Cathode
24	100Ω			BW-1-100	Br.-Blk.-Br. Output Cathode
25	2200Ω			BTA-2200	Red-Red-Red Filter
26	25Ω			BW-1-27	Red-Grn.-Blk. Surge Limiter

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SILVERTONE PART No.	STANCOR PART No.	THORDARN PART No.	MERIT PART No.	
27	1550Ω 3.7Ω 165Ω .5Ω	R61699	A-3876	T22845	A-2828	



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		SILVERTONE PART No.	JENSEN PART No.	
28	FIELD PM VC IMP. 3.75	R61693	ST-113 Mod. P4-X	
29	CONE DIA. VC DIA. 1/2	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.
30	Loop Ant.	2.1Ω	.1Ω	R61415	
31	Osc. Coil	12Ω		R61697	14-1040
32	Input IF	24Ω	21Ω	R61688	16-6666
33	Output IF	19Ω	19.5Ω	R61689	

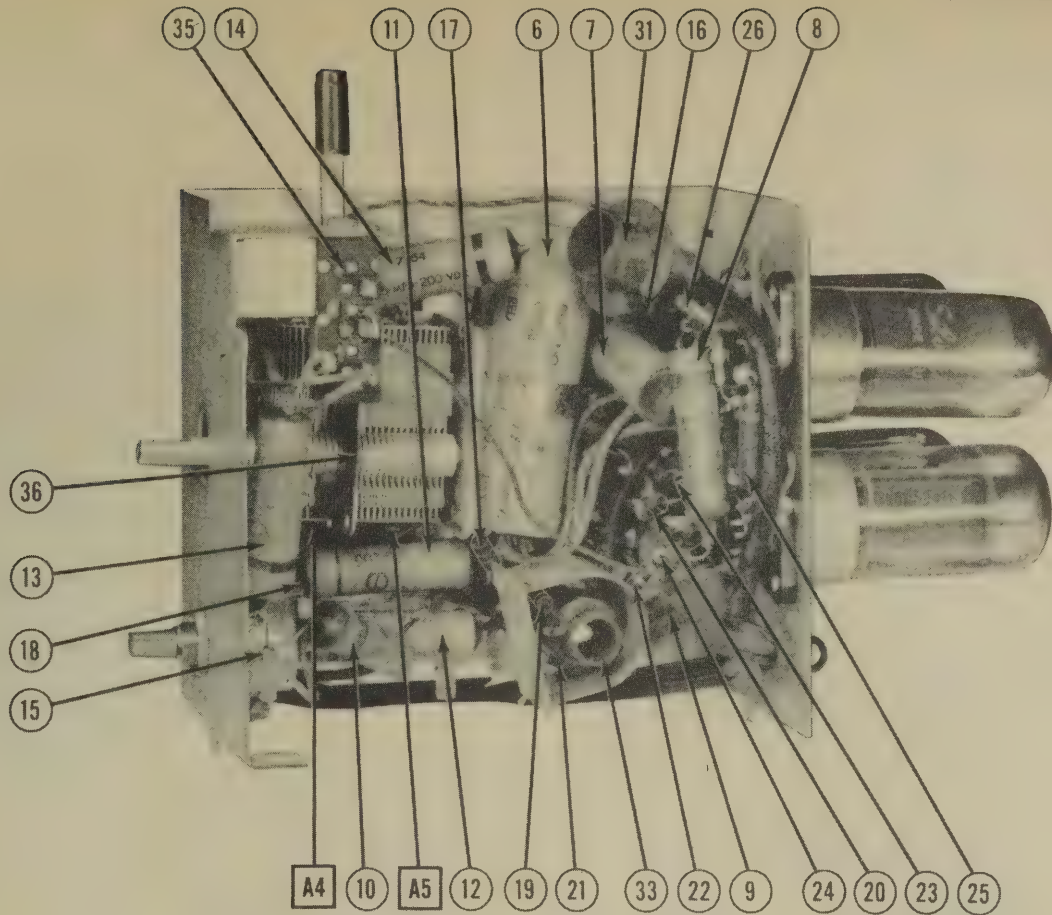
PHONO ARM AND CARTRIDGE

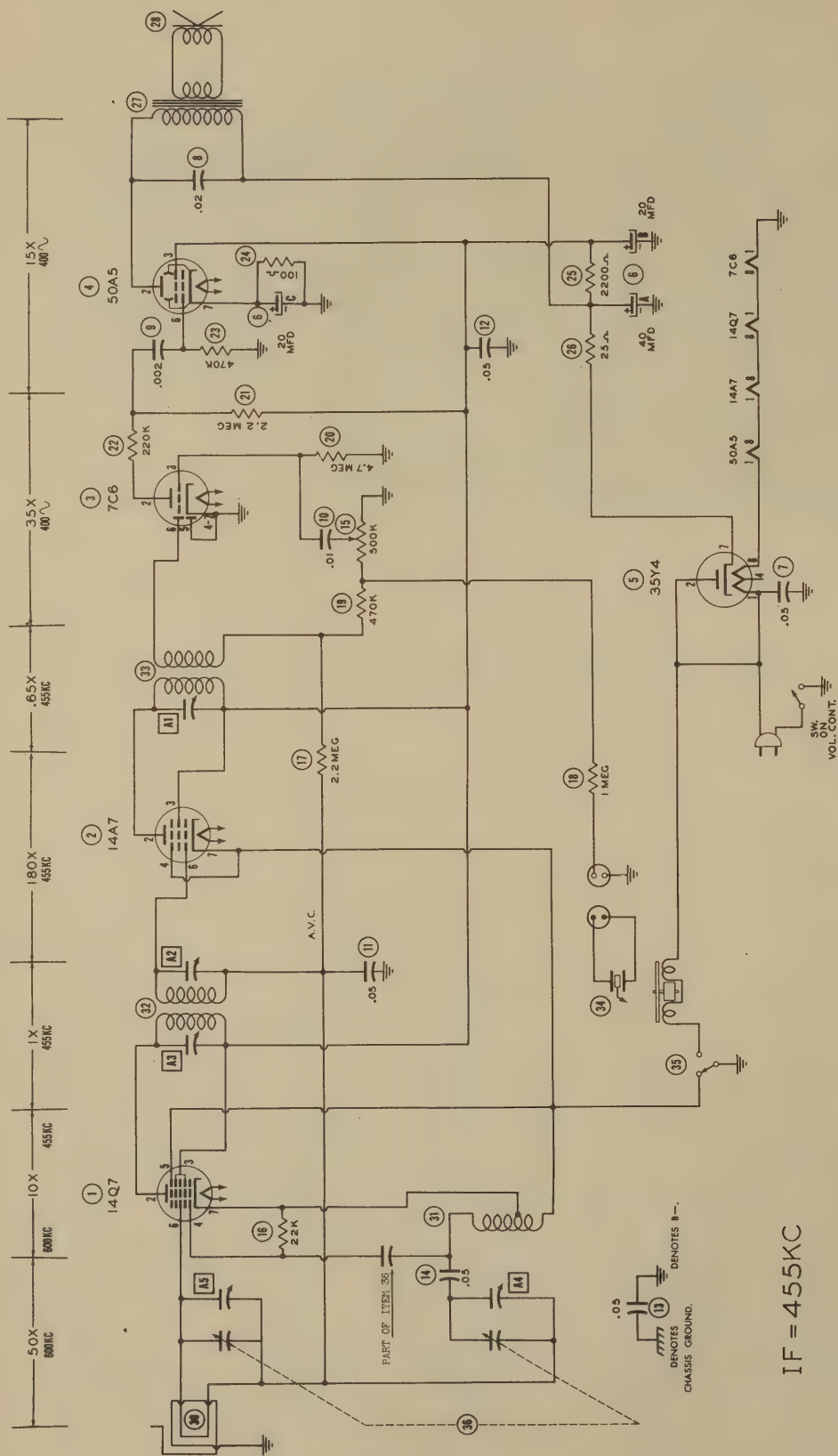
ITEM No.	REPLACEMENT DATA	REMARKS
	SILVERTONE PART No.	
34A	R62212	Pickup Arm
B	R52826	Cartridge
34A & B may be obtained as Unit. Part #R62208.		

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
35	Switch	R61687	Phono-radio (30-464 MMF, 22-143 mF) Output IF Ad1.
36	2 Gang Var. Cap.	R61682	
A1	Trimmer	R62282	

CHASSIS—BOTTOM VIEW





IF = 455KC

VOLTAGE AND RESISTANCE READINGS TAKEN WITH RADIO-PHONO SWITCH IN RADIO POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	79VAC	73VDC	73VDC	-10VDC	OV.	-4VDC	OV.	19VAC
2	14A7	32VAC	73VDC	73VDC	OV.	OV.	-4VDC	OV.	19VAC
3	7C6	28VDC	OV.	OV.	OV.	-5VDC	OV.	OV.	7VAC
4	50A5	84VAC	121VDC	73VDC	117VAC	OV.	OV.	4.1VDC	32VAC
5	35Y4	117VAC	117VAC	127VDC	110VAC	OV.	127VDC	128VDC	84VAC

STAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	72	160K Ω	160K Ω	22K Ω	OV.	3.5 Meg Ω	12	202
2	14A7	350	160K Ω	160K Ω	OV.	OV.	3.5 Meg Ω	OV.	202
3	7C6	OV.	2.6 Meg Ω	5 Meg Ω	OV.	900K Ω	OV.	OV.	72
4	50A5	802	160K Ω	160K Ω	1122	160K Ω	1102	332	802
5	35Y4	1122	1122	160K Ω	1052	OV.	160K Ω	160K Ω	802

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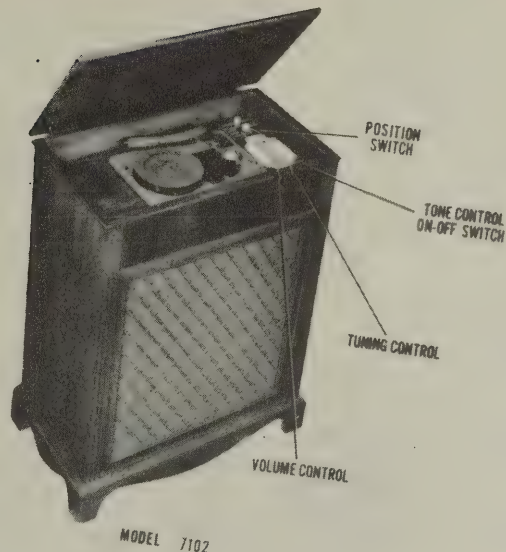
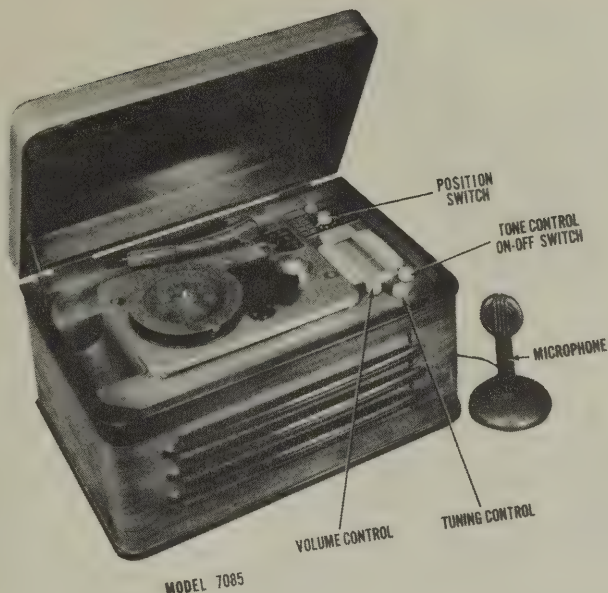
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4720-26

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SILVERTONE MODELS 7085 (Ch. 101.814)
7102 (Ch. 101.814-1A)



SILVERTONE MODELS 7085 (Ch. 101.814)
7102 (Ch. 101.814-1A)

TRADE NAME	Silvertone, Models 7085 (Ch. 101.814), 7102 (Ch. 101.814-1A)		
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.		
TYPE SET	AC Operated Phono-Radio Combination Superheterodyne with Wire Recorder-(For Wire Recorder Information see Photofact Folder #4716-32, Set. #26.)		
TUBES	(EIGHT) Types, 14Q7 Converter, 7B7 IF Amp., 7C6 Det.-AVC-AF, 50A5 Power Output, 1280 Pre-Amp., 50A5 Bias Osc., (2) 35Y4 Rectifier		
POWER SUPPLY	110-120 volts AC		
TUNING RANGE—BROADCAST	540-1600KC	RATING	.380 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.
Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

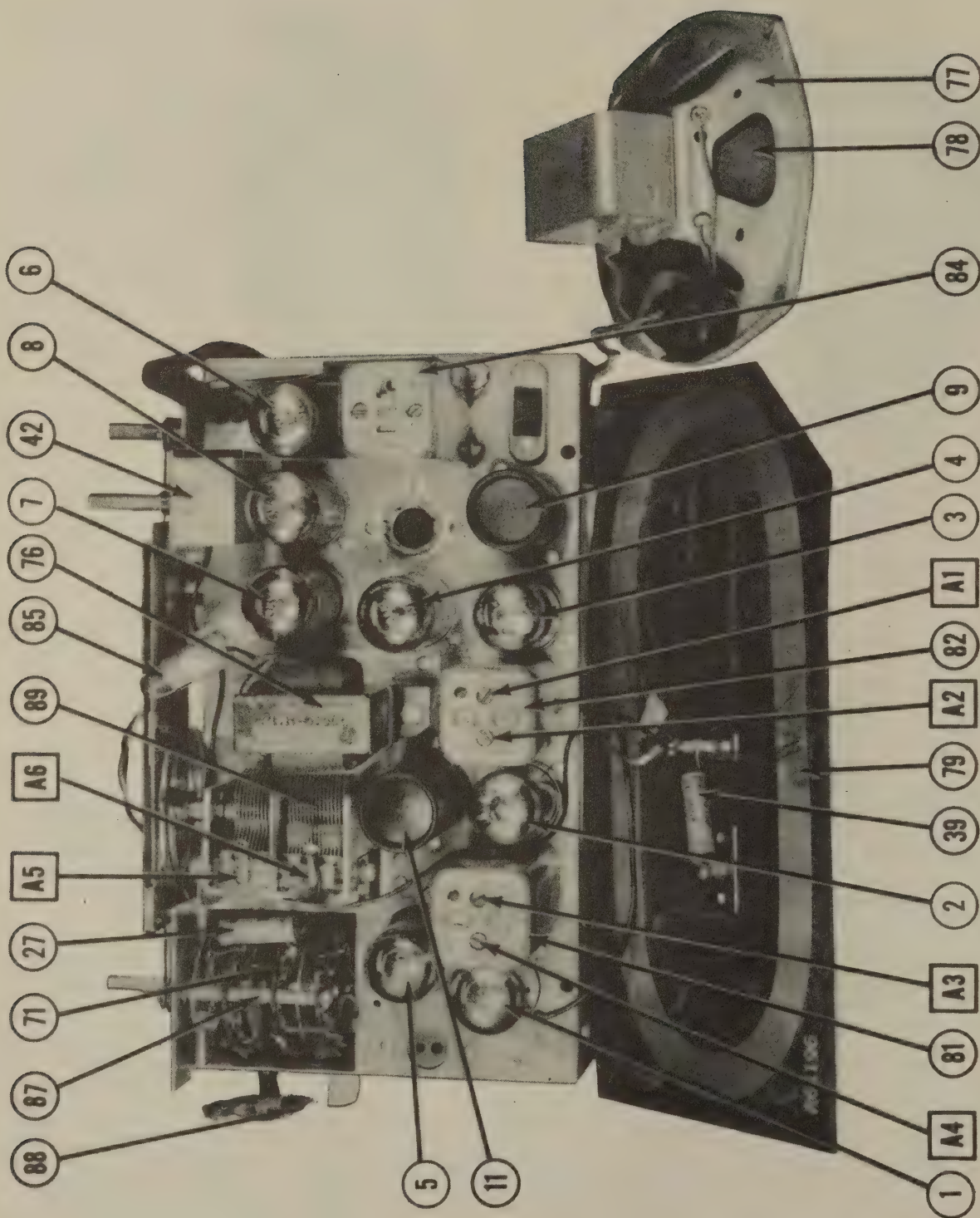
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to Pin 6 (grid) 14Q7. Low side to B-.	455KC	Tuning cap. fully closed.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2 200MMFD	High side to ext. ant. lead. Low side to B-.	1500KC	1500KC	"	A5	Adjust for maximum output.
3 200MMFD	"	"	Tune for maximum output.	"	A6	Adjust for maximum output. Repeat Steps 1, 2 & 3 until no further improvement can be made.

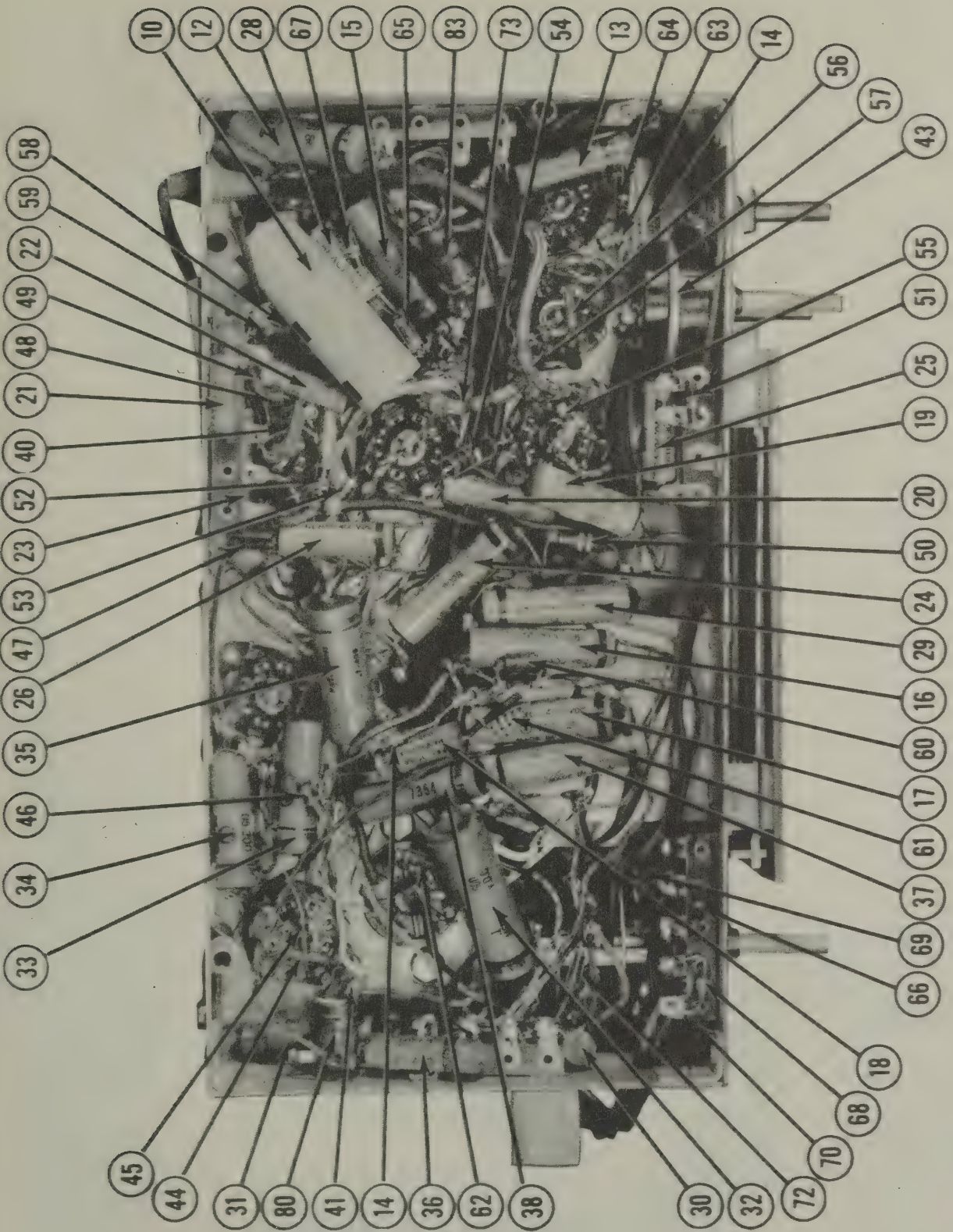
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DATE 12/47 SET #30 FOLDER #4720-27





PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		SILVERTONE PART No.	BMA BASE TYPE	
1	Converter	14Q7	8AL	
2	1 st Amp	7B7	8V	
3	Det.-AVC-AF	7C6	8W	
4	Power Output	50A5	6AA	
5	Pre-Amp.	12B6	8V	
6	Bias Osc.	50A5	6AA	
7	Rectifier	35Y4	5AL	
8	Rectifier	35Y4	5AL	

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	REPLACEMENT DATA		
		DC RES.	SILVERTONE PART No.	MEISSNER PART No.
79	Loop Ant.	20	R61557	
80	Osc. Coil	180	R61107	14-1040
81	Input IF	140	R61111	16-6658
82	Output IF	120	R61142	16-6670*
83	RF Choke	220	R43050	
84	Bias Osc.	10	R61519	

*Add 220K Ω resistor from low side of secondary to B-.

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION AND INSTALLATION NOTES
		SILVERTONE PART No.	MALLORY PART No.	SOLAR PART No.	CORNELL-DUBILIER PART No.	
9A	40	R61507		EL-245	UP6BJ35	Filter
10	40	R61517		UT-402	BR4025	"
11A	40	R60416		EL-352	UP4415C	"
12	0.05		MPH-6-05	TC-15	DT685	"
13	0.05		S-4-05	TC-15	DT455	Cathode Bypass
14	0.01		S-6-01	TC-11	DT681	Line Filter
15	1		S-4-1	TC-11	DT455	Wire Recorder Isol.
16	0.05		S-4-05	TC-15	DT455	Erase Osc. Grid
17	0.05		S-4-05	TC-15	DT455	Feedback
18	0.02		S-6-02	TC-22	DT682	AF Screen Bypass
19	0.01		S-6-01	TC-11	DT681	Audio Coupling
20	0.01		S-6-01	TC-11	DT681	Tone Comp.
21	0.04		S-6-04	TC-24	DT684	Output Plate Bypass
22	0.01		S-4-01	TC-11	DT451	Tone Comp.
23	0.05		S-6-05	TC-23	DT685	Audio Coupling
24	0.05		S-4-05	TC-15	DT455	Tone Compensation
25	0.02		S-4-02	TC-12	DT452	Tone Compensation
26	0.01		S-4-01	TC-11	DT451	Audio Coupling
27	0.02		S-4-02	TC-12	DT452	Tone Compensation
28	0.01		S-6-01	TC-21	DT681	Recorder Coupling
29	0.05		S-4-05	TC-15	DT455	Phono Coupling
30	0.01		S-6-01	TC-21	DT681	Phono Isolation
31	0.05		S-4-05	TC-15	DT455	Recorder Coupling
32	1		S-6-1	TC-1	DT681	RF Bypass Pwr. Supp.
33	0.05		S-4-05	TC-15	DT455	AVC Filter
34	0.05		S-4-05	TC-15	DT455	Line Isolation
35	1		S-4-01	TC-11	DT451	Tuning Cap. Isol.
36	0.01		S-4-01	TC-11	DT451	Cathode Bypass
37	0.05		S-4-05	TC-15	DT455	AVC Filter
38	0.05		S-4-05	TC-15	DT455	Ext. Ant. Coupling
39	0.01		S-6-01	TC-21	DT681	AF Plate Bypass
40	100		MC235	MO-5-31	5W5T1	Osc. Grid Cap.
41	50		MC225	MO-5-45	5W5Q5	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	SILVERTONE PART No.	
85	Bayonet	6-8	0.15	Brown		Type 47

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA		REMARKS
	SILVERTONE PART No.	ASTATIC PART No.	
86	R61977	L-71-A	

MISCELLANEOUS

ITEM No.	PART NAME	REPLACEMENT DATA		NOTES
		SILVERTONE PART No.	Neon (39-493TTF, 30-195TTF)	
87	Position Switch	R62035		
88	Indicator	R45981		
89	2 Gang Var. Cap.	R61100		

DISASSEMBLY INSTRUCTIONS ON MODEL 7085

1. Remove four push-on type control knobs.
2. Remove twelve wood screws holding panel on back of cabinet. Disconnect loop leads and remove panel from back of cabinet.
3. Remove phono-pickup plug from back of
4. Remove plug from chassis attached to recorder chassis.
5. Remove plug from recording head. Unsolder black ground lead from recorder.
6. Remove microphone plug from chassis.
7. Remove speaker plug from speaker.
8. Remove three Phillips head screws holding chassis in cabinet. Remove chassis from cabinet.
9. Remove four wood screws holding speaker in cabinet. Remove speaker from cabinet.

CONTROLS

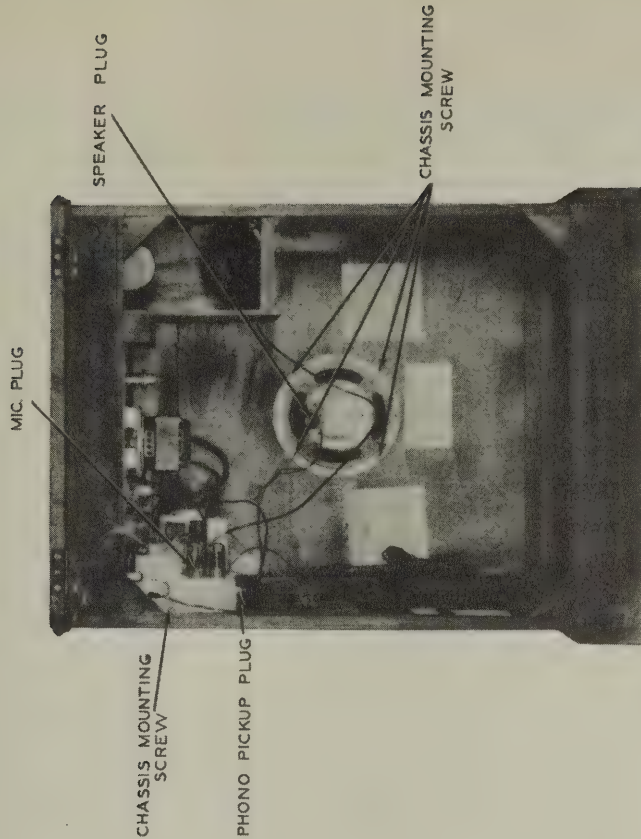
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
42A	500K Ω		TR233	D18-133X	T-98	Volume Control
43A	2 Meg. Switch	R61128	Not Req.	Not Req.	Not Req.	Attach to 42A per instructions
44A	2 Meg. Switch	R61864	Not Req.	D13-139	Not Req.	Tone Control
45A	2 Meg. Switch	Not Req.	Not Req.	41	SW-A	Attach to 45A per instructions

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SILVERTONE PART No.	IRC PART No.	
44	22KΩ	1/2	BTS-22K		Red-Red-Or. Oscillator Grid
45	100Ω	1/2	BW-1-100		Br.-Blk.-Br. Converter Cathode
46	1 Meg.	1/2	BTS-1 Meg.		Br.-Blk.-Grn. AVC Network
47	1 Meg.	1/2	BTS-1 Meg.		Br.-Blk.-Grn.
48	4.7 Meg.	1/2	BTS-4.7 Meg.		Yl.-Vi.-Grn. AF Grid
49	2.2 Meg.	1/2	BTS-2.2 Meg.		Red-Red-Grn. AF Plate Load
50	15KΩ	1/2	BTS-15K		Br.-Grn.-Or. Tone Compensation
51	10KΩ	1/2	BTS-10K		Br.-Blk.-Or. Tone Compensation
52	470KΩ	1/2	BTS-470K		Yl.-Vi.-Yl. Output Grid
53	150Ω	1/2	BW-1-150		Br.-Grn.-Br. Output Cathode
54	1500Ω	1/2	BTA-1500		Br.-Grn.-Red Filter
55	25Ω	1/2	BW-1-27		Red-Grn.-Blk. Surge Limiter
56	25Ω	1/2	BW-1-27		Red-Grn.-Blk.
57	130Ω	1/2	BTS-1200		Br.-Or.-Br. Line Dropping
58	1200Ω	1/2	BTS-10K		Br.-Red-Red Filter
59	10KΩ	1/2	BTS-1.5 Meg.		Br.-Blk.-Or. Filter
60	1.5 Meg.	1/2	BTS-390K		Br.-Grn.-Grn. Pre-Amp. Screen Dropping
61	390KΩ	1/2	BTS-33K		Yl.-White-Yl. Pre-Amp. Plate Load
62	4.7 Meg.	1/2	BTS-33K		Yl.-Vi.-Grn. Pre-Amp. Grid
63	33KΩ	1/2	BW-1-56		Or.-Or.-Or. Bias Oscillator Grid-See Note 5
64	56Ω	1/2	BTS-8200		Gray-Red-Red Tone Compensator
65	8200Ω	1/2	BW-1-10		Br.-Blk.-Blk. Voice Coil Shunt - See Note 4
66	10Ω	1/2	BTS-150K		Br.-Grn.-Yl. Tone Compensation
67	150KΩ	1/2	BW-1-18		Br.-Grn.-Yl. Series Neon Indicator
68	150KΩ	1/2	BW-1-18		Br.-Gray-Blk. Voice Coil Shunt - See Note 3
69	18Ω	1/2	BW-1-4.7		Blk.-Grn.-Blk. Series Voice Coil - See Note 2
70	5Ω	1/2	BTS-47K		Yl.-Vi.-Or. Volume Control Shunt
71	47KΩ	1/2	BTS-1 Meg.		Br.-Blk.-Grn. Series Phono
72	1 Meg.	1/2	BTS-120K		Grn.-Blk.-Blk. Line Dropping
73	50Ω	1/2	BTS-270K		Red-Red-Yl. Tone Compensation
74	120KΩ	1/2			Red-Vi.-Yl. Microphone Shunt-See Note 1
75	270KΩ	1/2			

Note 1 - Not used in all models.
 Note 2 - Early production used 10Ω in this application. IRC replacement BW-1-10.
 Note 3 - Early production used 12Ω in this application. IRC replacement BW-1-12.
 Note 4 - Early production used 15Ω in this application. IRC replacement BW-1-15.
 Note 5 - Early production used 68KΩ in this application. IRC replacement BTS-68K.



DISASSEMBLY INSTRUCTIONS FOR MODEL 7102

1. Remove four push-on type control knobs.
2. Remove phono pick-up plug from chassis.
3. Remove plug from chassis attached to recorder switch.
4. Remove plug from recording head. Unsolder black ground lead from recorder.
5. Remove phono-motor plug from chassis.
6. Remove microphone plug from chassis.
7. Remove speaker plug from speaker.
8. Remove three screws holding chassis in cabinet. Remove chassis from cabinet.
9. Remove four wood screws holding speaker in cabinet. Remove speaker from cabinet.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI. SEC.	SEC.	SILVERTONE PART No.	STANCOR PART No.	THOR-DAR-N PART No.	
76	2400Ω	3.2Ω	302Ω	.5Ω	R61506			

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	IMP.	SILVERTONE PART No.	JENSEN PART No.	THOR-DAR-N PART No.	
77A	FIELD	16 IMP.	R6117	ST-106		Used in Model 7085 only
78A	CONE DIA.	3.25	R60750	Mod. P6-X		
77B	FIELD	16 IMP.	R61558	ST-117		Used in Model 7102 only
78B	CONE DIA.	3.18	R59799	Mod. P3-T		
79B	CONE DIA.	3/4				

DATE 12/47

SET #30

FOLDER #4720-27



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

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THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4720-27

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	19VAC	80VDC	80VDC	-7.4VDC§	.8VDC	-.1VDC	.8VDC	7VAC
2	7B7	25VAC	80VDC	80VDC	0V.	0V.	-.1VDC	0V.	19VAC
3	7C6	7VAC	50VDC	-.4VDC	0V.	0V.	-.4VDC	0V.	0V.
4	50A5	25VAC	110VDC	80VDC	0V.	0V.	0V.	5VDC	75VAC
# 5	1280	12VAC	38VDC	18VDC	0V.	0V.	-.6VDC	0V.	0V.
± 6	50A5	62VAC	150VDC	150VDC	150VDC	-37VDC	-37VDC	.2VDC	12VAC
7	35Y4	117VAC	117VAC	0V.	108VAC	150VDC	0V.	150VDC	87VAC
8	35Y4	117VAC	112VAC	115VDC	112VAC	115VDC	0V.	117VDC	87VAC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

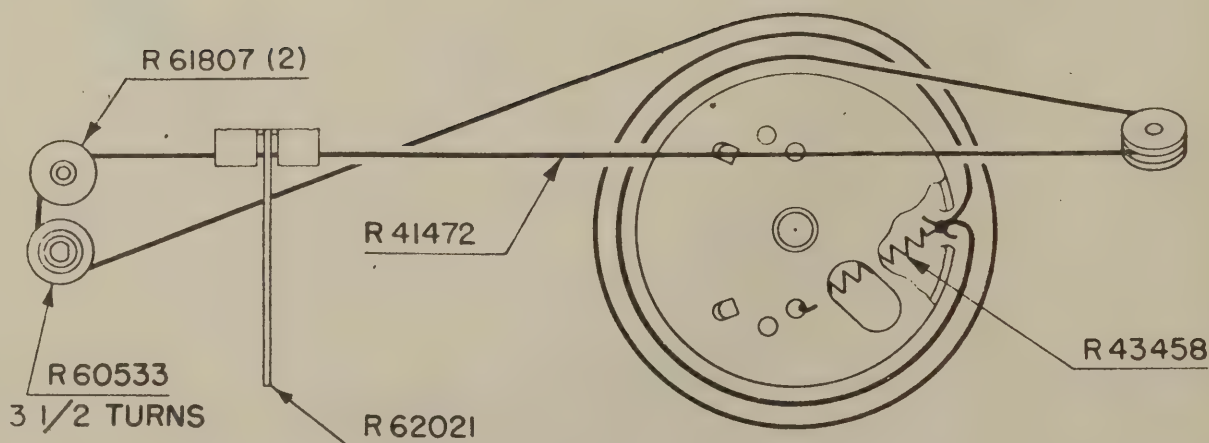
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	18Ω	170KΩ	170KΩ	22KΩ	90Ω	2.3 Meg	90Ω	7Ω
2	7B7	24Ω	170KΩ	170KΩ	0Ω	0Ω	1.3 Meg	0Ω	18Ω
3	7C6	7Ω	2.4 Meg	5 Meg.	0Ω	0Ω	200KΩ	0Ω	0Ω
4	50A5	24Ω	170KΩ	170KΩ	INF.	INF.	440KΩ	150Ω	60Ω
# 5	1280	12Ω	540KΩ	1.7 Meg.	0Ω	0Ω	5 Meg.	0Ω	0Ω
± 6	50A5	52Ω	140KΩ	140KΩ	140KΩ	38KΩ	38KΩ	22Ω	12Ω
7	35Y4	90Ω	90Ω	0Ω	90Ω	140KΩ	INF.	140KΩ	85Ω
8	35Y4	90Ω	90Ω	170KΩ	90Ω	170KΩ	INF.	170KΩ	95Ω

#READINGS ON TUBE #5 TAKEN IN "PLAY-WIRE RECORDING " POSITION(FULL C.C.W.)

±TAKEN WITH SWITCH CONTACT #3 OF SECTION 3 REAR CONNECTED TO B-.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

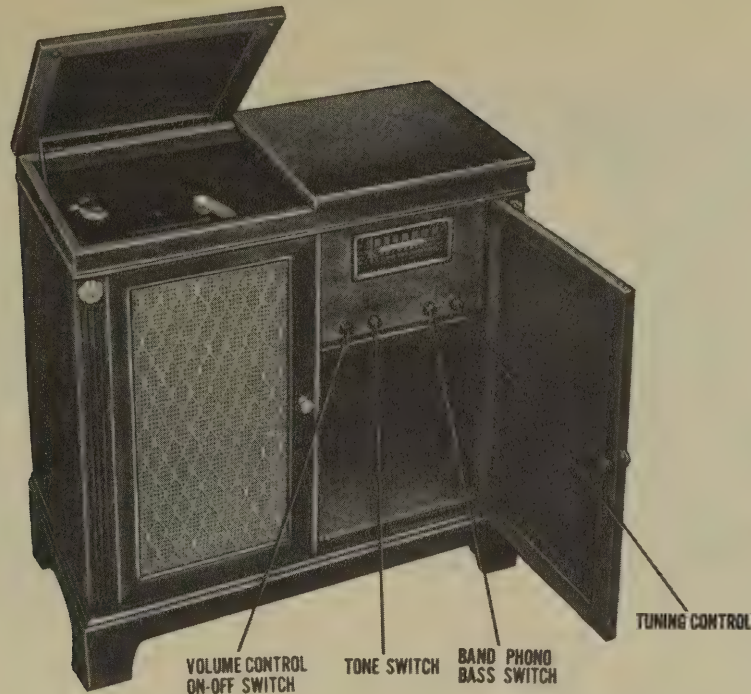
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



TUNING GANG FULLY CLOSED

DIAL CORD DRIVE

SILVERTONE MODEL
7111 (Ch. 434.140)



SILVERTONE MODEL
7111 (Ch. 434.140)

SILVERTONE MODEL 7111 (Ch. 434.140)

TRADE NAME	Silvertone, Model 7111 (Ch. 434.140)						
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.						
TYPE SET	AC Operated Phono-Radio Combination Multi-Band Superheterodyne with Loop Antenna						
TUBES (EIGHT)	Types, 6SK7GT RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6J5 Phase Inverter, (2) 6V6GT Power Output, 5Y3GT Rectifier.						
POWER SUPPLY	110-120 Volts AC			RATING	.780 Amp. @ 117 Volts AC		
TUNING RANGE—BROADCAST	535-1680KC			SHORT WAVE	2.2-7.2MC 6.9-23.5MC		
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
To set pointer turn tuning cap. fully closed and set pointer to the + mark at low freq. end of BC band.							
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.							
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD.	High side to center stator of tuning cap. Low side to chassis.	455KC	BC	High freq. end of dial	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
100MMFD	High side to ant. terminal. Low side to chassis.	1680KC	"	Tuning cap. fully open.	"	A5	" " " "
100MMFD	"	1500KC	"	Tune for maximum output.	"	A6,A7	" " " "
100MMFD	"	600KC	"	"	"	A8	Rock tuning cap. and adjust for maximum output.
100MMFD	"	1680KC	"	Tuning cap. fully open.	"	A5	Adjust for maximum output
.01 MFD	High side to Pin 8 (grid) 6SA7. Low side to chassis.	7.2MC	SW 1	"	"	A9	" " " "
400Ω	High side to ant. terminal. Low side to chassis.	2.5MC	"	2.5MC	"	A10	Rock tuning cap. and adjust for maximum output.
400Ω	"	6.0MC	"	Tune for maximum output.	"	A11,A12	Adjust for maximum output
400Ω	"	7.2MC	"	Tuning cap. fully open.	"	A9	" " " "
400Ω	"	23.5MC	SW 2	"	"	A13	" " " "
400Ω	"	21MC	"	Tune for maximum output.	"	A14, A15	" " " "

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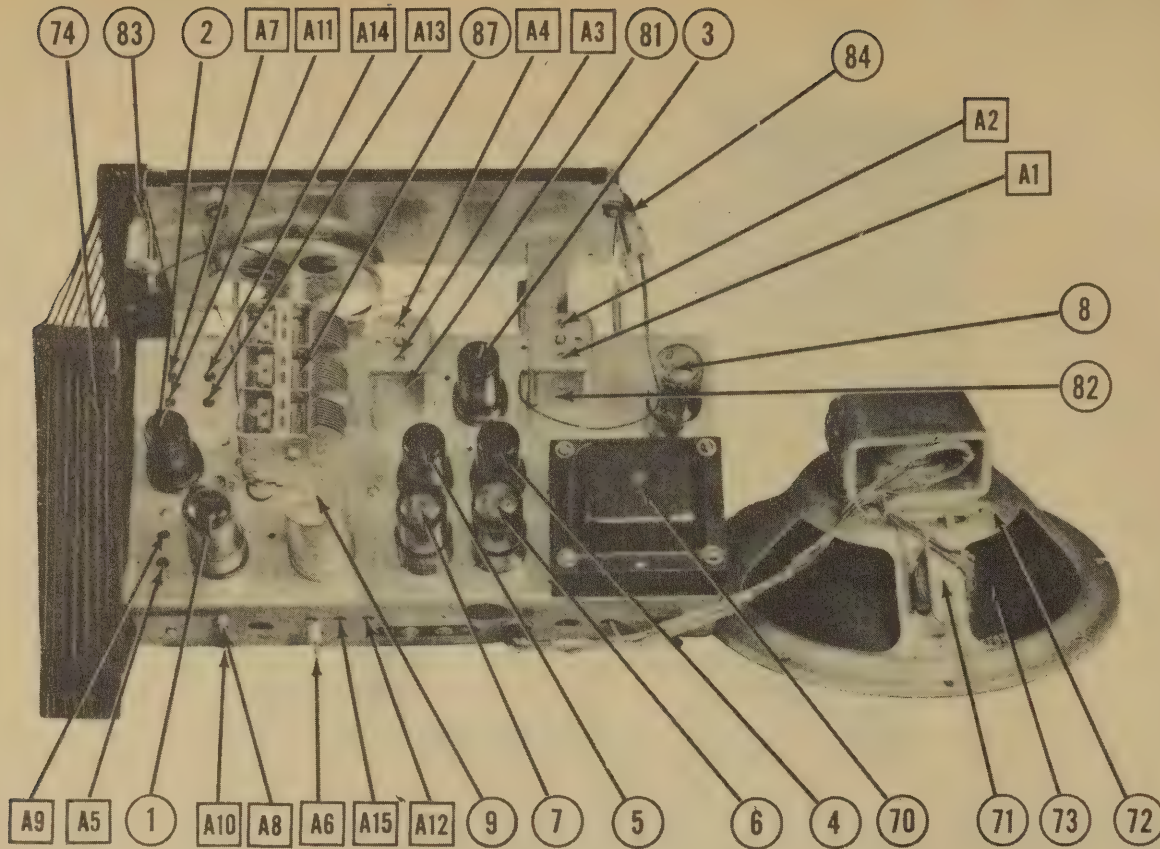
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DATE 12/47 SET #30 FOLDER #4720-23

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW



CAPACITORS
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		SILVERTONE PART No.	STANDARD REPLACEMENT	
1	RF Amp.	6SK7GT	6SK7GT	
2	Converter	6SA7	6SA7	
3	IF Amp.	6SK7	6SK7	
4	Det.-AVC-AF	6SC7	6SC7	
5	Phase Inverter	6J5	6J5	
6	Power Output	6V6GT	6V6GT	
7	Power Output	6V6GT	6V6GT	
8	Rectifier	5Y3GT	5Y3GT	

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		SILVERTONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
9A	CAP. 40	FP238	FP238	DY-2840-450	EL-240	UP4445
10	40	CL3806	TP426	S-4-05	TC-15	D7455
11	.05		TP405	S-6-002	TC-12	D76D2
12	.002		TP430	S-4-25	TC-2	D74P25
13	.05		TP426	S-4-05	TC-15	D74S5
14	.05		TP426	S-4-05	TC-15	D74S5
15	.05		TP426	S-4-05	TC-15	D74S5
16	.05		TP426	S-4-05	TC-15	D74S5
17	.001		TP405	S-6-002	TC-12	D76D2
18	.002		TP405	S-6-002	TC-12	D76D2
19	.001		TP405	S-6-002	TC-12	D76D2
20	.001		TP405	S-6-002	TC-12	D76D2
21	.01		TP421	S-4-01	TC-11	D74S1
22	.01		TP421	S-4-01	TC-11	D74S1
23	.03		TP426	S-4-05	TC-15	D74S3
24	.05		TP426	S-4-05	TC-15	D74S3
25	.01		TP421	S-4-01	TC-11	D74S1
26	.01		TP421	S-4-01	TC-11	D74S1
27	.02		TP426	S-4-05	TC-15	D74S3
28	.02		TP426	S-4-05	TC-15	D74S3
29	.01		TP421	S-4-01	TC-11	D74S1
30	.03		TP421	S-4-01	TC-11	D74S1
31	.005		TP408	S-6-005	TC-25	D76D5
32	.25		MC240	MO 5-325	1P4-325	5M5T25
33	6800		MC235	MO 5-31	1P4-31	5M5T1
34	100		MC235	MO 5-31	1P4-31	5M5T1
35	100		MC235	MO 5-31	1P4-31	5M5T1
36	500		MC245	MO 5-35	1P4-35	5M5T5
37	400		MC463	MO 5-24	1P4-24	1D5D4
38	50		MC225	MO 5-45	1P4-45	5M5Q5
39	50		MC225	MO 5-45	1P4-45	5M5Q5
40	6800		MC225	MO 5-45	1P4-45	5M5Q5

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
41A	500KΩ	X13371	TP233	D18-133X	T-88	Volume Control
41B	Switch		Not Req.	41	Not Req.	Attach to 41A per instructions
41C	Switch		Y26	41	SW-A	

RESISTORS

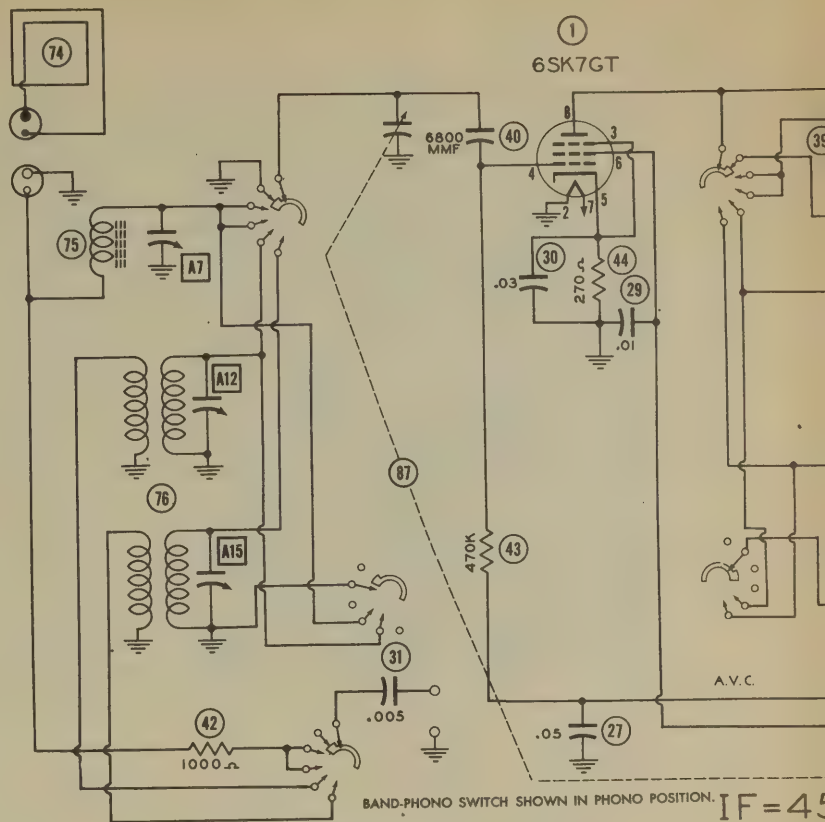
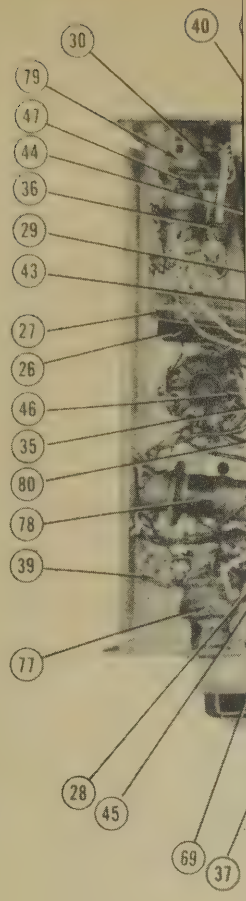
ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		SILVERTONE PART No.	IRC PART No.	
42	1000Ω		BTS-1000	Br.-Blk.-Red Antenna Loading
43	470KΩ		BTS-470K	Yl.-Vi.-Yl. RF Grid
44	270Ω		BW-4-270	Red-Vi.-Br. RF Cathode
45	1.5 Meg.		BTS-1.5 Meg.	Br.-Grn.-Grn. Converter Grid SW 2
46	22KΩ		BTS-22K	Red-Red-Grn. Oscillator Grid
47	8200Ω		BTS-8200	Gray-Red-Red Parasitic Suppressor
48	220KΩ		BTS-220K	Red-Red-Yl. AVC Network

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		SILVERTONE PART No.	IRC PART No.	
49	22K Ω		BT-2-22K	Red-Red-Or. Converter Screen Dropping
50	270 Ω		BW-4-270	Red-Vi.-Br. IF Cathode
51	22K Ω		BTA-22K	Red-Red-Or. Screen Dropping
52	2.2 Meg.		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
53	150K Ω		BTS-150K	Br.-Grn.-Yl. Diode Load
54	330K Ω		BTS-330K	Or.-Or.-Yl. Diode Load
55	470K Ω		BTS-470K	Yl.-Vi.-Yl. Series Phono
56	2.2 Meg.		BTS-2.2 Meg.	Red-Red-Grn. Phono Shunt
57	15 Meg.		BTS-15 Meg.	Br.-Grn.-Blue AF Grid
58	470K Ω		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
59	22K Ω		BTS-22K	Red-Red-Or. Tone Compensation
60	470K Ω		BTS-470K	Yl.-Vi.-Yl. Phase Inverter Grid

CHASSIS—BOTTOM VIEW



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0V.	0V.	2.8VDC	-.1VDC	2.8VDC	113VDC	6.5VAC	212VDC
2	6SA7	0V.	0V.	212VDC	68VDC	-7VDC \S	0V.	6.5VAC	-.3VDC
3	6SK7	0V.	0V.	3.3VDC	-.4VDC	3.3VDC	113VDC	6.5VAC	212VDC
4	6SQ7	0V.	-.45VDC	0V.	-.4VDC	-.35VDC	68VDC	6.5VAC	0V.
5	6J5	0V.	0V.	130VDC	212VDC	12VDC	42VDC	6.5VAC	47VDC
6	6V6GT	0V.	0V.	328VDC	212VDC	0V.	162VDC	6.5VAC	9VDC
7	6V6GT	0V.	0V.	328VDC	212VDC	0V.	66VDC	6.5VAC	9VDC
8	5Y3GT/G	0V.	348VDC	113VAC	320VAC	0V.	320VAC	348VDC	348VDC

\S TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0 Ω	0 Ω	250 Ω	3 Meg.	250 Ω	82K Ω	.1 Ω	60K Ω
2	6SA7	0 Ω	0 Ω	60K Ω	83K Ω	20K Ω	.5 Ω	.1 Ω	2.7 Meg
3	6SK7	0 Ω	0 Ω	270 Ω	2.2 Meg.	270 Ω	82K Ω	.1 Ω	60K Ω
4	6SQ7	0 Ω	15 Meg.	0 Ω	2.2 Meg.	500K Ω	580K Ω	.1 Ω	0 Ω
5	6J5	0 Ω	0 Ω	150K Ω	60K Ω	580K Ω	50K Ω	.1 Ω	58K Ω
6	6V6GT	0 Ω	0 Ω	60K Ω	60K Ω	220K Ω	110K Ω	.1 Ω	110 Ω
7	6V6GT	0 Ω	0 Ω	60K Ω	60K Ω	220K Ω	93K Ω	.1 Ω	110 Ω
8	5Y3GT/G	0 Ω	60K Ω	INF.	140 Ω	INF.	130 Ω	60K Ω	60K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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The stage gain measured values listed above are approximate average operative stage, rather than an absolute value. In mind that it is possible to introduce so many variables in operation, such as, type of equipment used for measurement and placement of probes, the accuracy of alignment, etc., reading is impractical. AVC is made inoperative and 3 substituted for measurement.

ST
RF GE
CONV
CONV.
1st I
IF T
2nd T
AUDIO
INV.
OUTPU

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SILVERTONE PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7GT	6SK7GT	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SC7	6SC7	8Q	
5	Phase Inverter	6J5	6J5	6Q	
6	Power Output	6V6GT	6V6GT	7AC	
7	Power Output	6V6GT	6V6GT	7AC	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

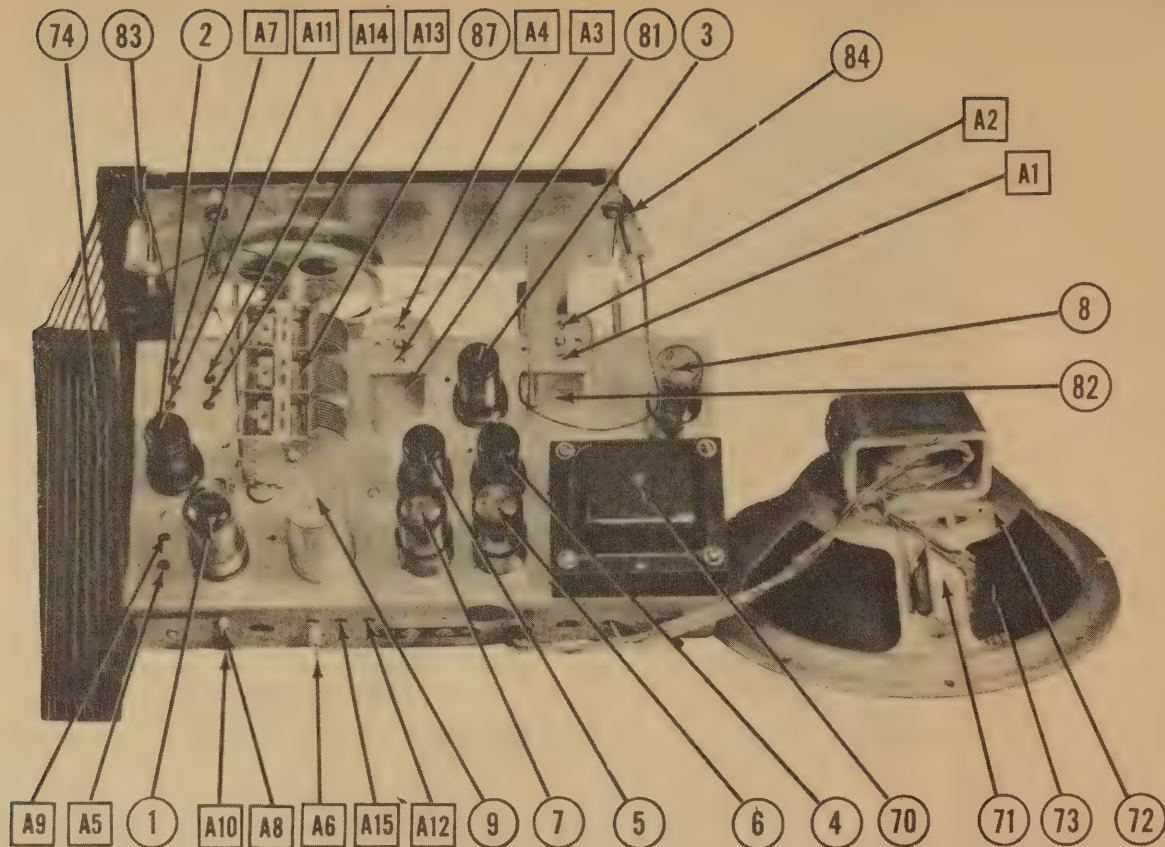
ITEM No.	RATING		REPLACEMENT DATA					CORNELL-DUBILIER PART No.	AEROVOX PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	SILVERTONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.				
9A	40	450		FP238	DY-2x40-450	EL-240	UP4445	▲ Filter		
B	40	450						▲		
10	.01	450	C13806	TP426	S-4-05	TC-15	DT435	Line Bypass		
11	.002	600		TP405	S-6-002	TC-12	DT6D2	Output Plate Bypass		
12	.002	600		TP405	S-6-002	TC-12	DT6D2			
13	.025	400		TP430	S-4-25	TC-2	DT4P25	Plate Decoupling		
14	.05	400		TP426	S-4-05	TC-15	DT435	Audio Coupling		
15	.05	400		TP426	S-4-05	TC-15	DT435	"		
16	.02	400		TP423	S-4-02	TC-12	DT4S2	"		
17	.001	600		TP404	S-6-001	TC-21	DT6D1	Tone Compensation		
18	.002	600		TP405	S-6-002	TC-22	DT6D1			
19	.005	400		TP408	S-6-005	TC-25	DT6D4	Audio Coupling		
20	.001	600		TP404	S-6-001	TC-21	DT6D1	Tone Compensation		
21	.01	200		TP421	S-4-01	TC-11	DT4S1	Audio Coupling		
22	.05	400		TP426	S-4-05	TC-15	DT4S5	IF Screen Bypass		
23	.03	400		TP424	S-4-03	TC-13	DT4S3	Plate Decoupling		
24	.05	400		TP426	S-4-05	TC-15	DT4S5	IF Cath. Bypass		
25	.01	400		TP421	S-4-01	TC-11	DT4S1	AVC Filter		
26	.01	400		TP421	S-4-01	TC-11	DT4S1	AVC Filter		
27	.05	200		TP426	S-4-05	TC-15	DT4S5	Conv. Screen Bypass		
28	.02	200		TP423	S-4-02	TC-12	DT4S2	Conv. Grid Filter		
29	.01	400		TP421	S-4-01	TC-11	DT4S1	RF Screen Bypass		
30	.03	400		TP424	S-4-03	TC-13	DT4S3	RF Cath. Bypass		
31	.005	400		TP408	S-6-005	TC-25	DT6D5	Ext. Ant. Coupling		
32	250	500		MC240	M0.5-325	1FM-325	SW5T25	Audio Plate Bypass		
33	6800	300						Tone Compensation		
34	100	500		MC235	M0.5-31	1FM-31	SW5T1	Osc. Grid Capacitor		
35	100	500		MC235	M0.5-31	1FM-31	SW5T1	Fixed Padder		
36	500	500		MC245	M0.5-35	1FM-35	SR5T5			
37	37	4000		MC463	1M.5-24	1FM-24	1DS4			
38	3	500						RF Coupling		
39	50	500		MC225	M0.5-45	1FM-45	SW5Q5	RF Pri. Shunt		
40	6800	300						RF Coupling		

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST-ANCE	WATTS	SILVERTONE PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
41A	500KΩ	1	X13371	TP233	D18-133X	T-88	Volume Control
B	500KΩ	1	X13371	TP233	D18-133X	A	Not Req.
C	500KΩ	1	X13371	TP233	D18-133X	41	Attach to 41A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SILVERTONE PART No.	IRC PART No.	
42	1000Ω	+	BTS-1000		Br.-Blk.-Red Antenna Loading
43	470KΩ	+	BTS-470K		Yl.-Vl.-Yl. RF Grid
44	470KΩ	+	BW-4-270		Red-Vl.-Br. RF Cathode
45	270Ω	+	BTS-1.5 Meg.		Br.-Grn.-Grn. Converter Grid SW 2
46	1.5 Meg.	+	BTS-22K		Red-Red-Or. Oscillator Grid
47	22KΩ	+	BTS-8200		Gray-Red-Red Parasitic Suppressor
48	8200Ω	+	BTS-220K		Red-Red-Yl. AVC Network
49	220KΩ	+			



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SILVERTONE PART No.	IRC PART No.	
49	22K Ω	2	X14.037	BT-2-22K	Red-Red-Or. Converter Screen Dropping
50	270 Ω	2		BW-2-270	Red-VI.-Br. IF Cathode
51	22K Ω	2		BT-2-22K	Red-Red-Or. Screen Dropping
52	2.2 Meg.	2		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
53	150K Ω	2		BTS-150K	Br.-Grn.-Yl. Diode Load
54	330K Ω	2		BTS-330K	Or.-Or.-Yl. Diode Load
55	470K Ω	2		BTS-470K	Yl.-VI.-Yl. Series Phono
56	2.2 Meg.	2		BTS-2.2 Meg.	Red-Red-Grn. Phono Shunt
57	15 Meg.	2		BTS-15 Meg.	Br.-Grn.-blue AF Grid
58	470K Ω	2		BTS-470K	Yl.-VI.-Yl. AF Plate Load
59	22K Ω	2		BTS-22K	Red-Red-Or. Tone Compensation
60	470K Ω	2		BTS-470K	Yl.-VI.-Yl. Phase Inverter Grid
61	4700 Ω	2		BTS-4700	Yl.-VI.-Yl. Phase Inverter Cathode-See Note 1
62	47K Ω	2		BTS-47K	Yl.-VI.-Or. Phase Inverter Cathode
63	47K Ω	2		BTS-47K	Yl.-VI.-Or. Phase Inverter Plate Load
64	220K Ω	2		BTS-220K	Red-Red-Yl. Output Grid
65	220K Ω	2		BTS-220K	Red-Red-Yl. " "
66	120 Ω	2		BW-2-120	Br.-Red-Br. Output Cathode
67	4000 Ω	10		AB-4000	" " Filter
68	47K Ω	2		BTS-47K	Yl.-VI.-Or. " "
69	51 Ω	2		BW-2-51	Grn.-Br.-Br. Parasitic Suppressor

Note 1 - Some models use 3300 Ω in this application. IRC replacement BTS-3300.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	SILVERTONE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
70	117V AC @ .78A	640V CT @ .104A	5.1V AC @ 2.0A	6.5V AC @ 2.3A	X13370	P-6013*	T22R06	P-2954*

*Add resistor to reduce plate voltage.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI.	SEC.	SILVERTONE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
71	13700 Ω CT	3.8 Ω	530 Ω CT	.4 Ω	X15.019	A-3823	T22548 +	A-2901	*Drill one new mounting hole.

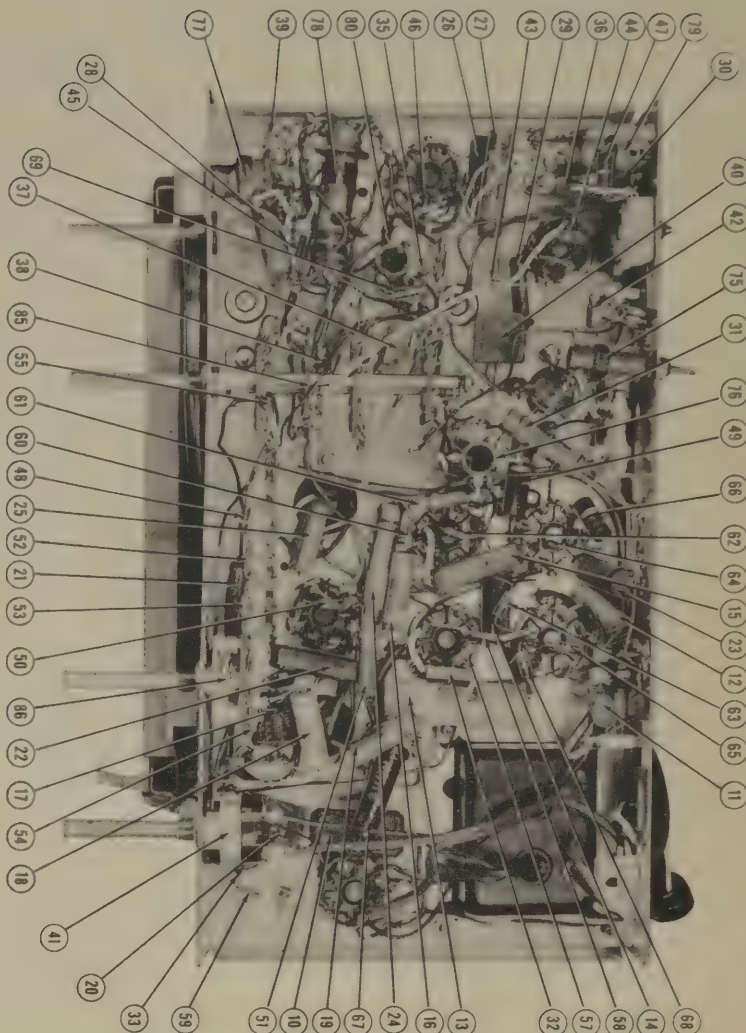
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	SILVERTONE PART No.	JENSEN PART No.	
72	PM	3.8 Ω	X13939	ST-1191	Replace output transformer to match 6 Ω voice coil.
73	CONE DIA. 9"	VC DIA. 1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	
74	Loop Ant.		.3 Ω	X14485		
75	BC Ant.		2.3 Ω	X13997		
	Loading Cdl		0 Ω	X13373		
76A	SW Ant. Cdl	1 Ω	0 Ω			76A & 76B wound on same form
77	BC RF Coil	130 Ω	5 Ω	X13374	14-1027	
78A	SW " "	27 Ω	5 Ω	X13375		78A & 78B " " " "
78B	" " "	7 Ω	0 Ω			
79A	BC Osc. Coil	7 Ω	2.5 Ω	X13376		79A & 79B " " " "
79B	SW " "	0 Ω				
80	SW " "	25 Ω	25 Ω	X13377	14-1046	
81	Input IF			X13902	16-6858	
82	Output IF			X13903	16-6670	

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHT

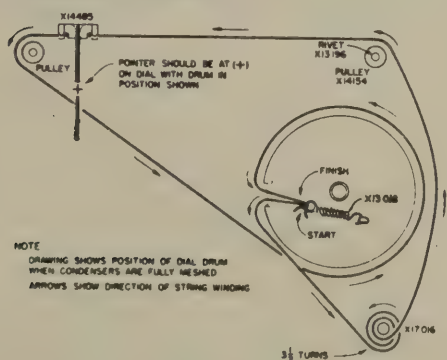
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SILVERTONE PART No.		
83	Bayonet	6-B	0.15	Brown			Type 47

MISCELLANEOUS

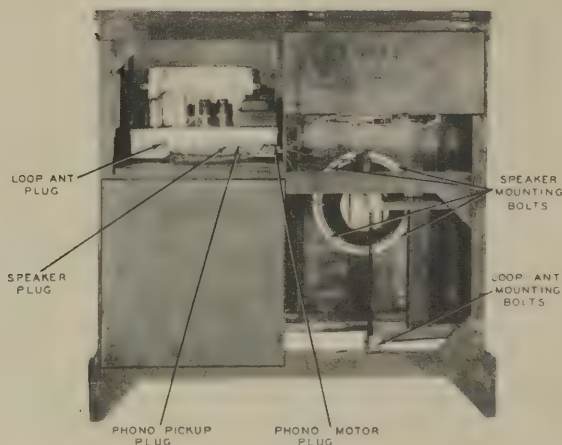
ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
85	Switch	X13378	Band-Bass-Phono
86	Tone Switch	X13379	
87	3 Gang Var. Cap.	X13385	15-479 MMF (each section)
	Dial Glass	X3.087	
	Dial Pointer	X14485	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA		REMARKS
	SILVERTONE PART No.	ASTATIC PART No.	
88	X28.012-1	L-70-A	

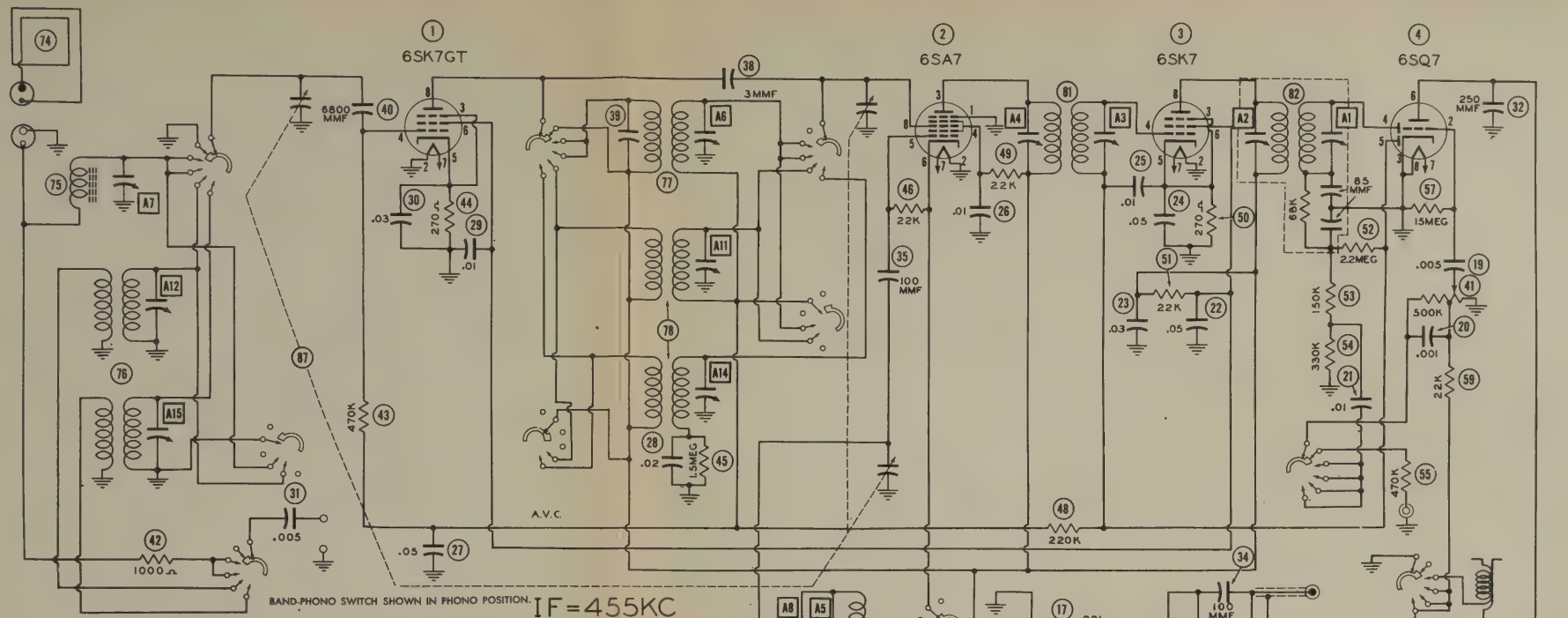


NOTE
DRAWING SHOWS POSITION OF DIAL DRUM
WHEN CONCENTERS ARE FULLY WOUND
ARROWS SHOW DIRECTION OF STRING WINDING



DISASSEMBLY INSTRUCTIONS

1. Remove four control knobs from front of cabinet.
2. Remove speaker plug from chassis.
3. Remove phono-motor plug from receptacle.
4. Remove phono-pickup plug from chassis.
5. Remove loop antenna plug from chassis.
6. Remove four chassis mounting bolts. Remove chassis.
7. Remove 14 self-tapping screws holding bottom shield to chassis. Remove shield.
8. Remove four hex nuts holding speaker. Remove speaker.
9. Remove two bolts holding antenna in brackets. Remove loop antenna.



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	OV.	OV.	2.8VDC	-.1VDC	2.6VDC	113VDC	6.5VAC	212VDC
2	6SA7	OV.	OV.	212VDC	68VDC	-7VDC	OV.	6.5VAC	-.3VDC
3	6SK7	OV.	OV.	3.3VDC	-.4VDC	3.3VDC	113VDC	6.5VAC	212VDC
4	6SQ7	OV.	-.45VDC	OV.	-.4VDC	-.35VDC	68VDC	6.5VAC	OV.
5	6J5	OV.	OV.	130VDC	212VDC	12VDC	42VDC	6.5VAC	47VDC
6	6V6GT	OV.	OV.	328VDC	212VDC	OV.	162VDC	6.5VAC	9VDC
7	6V6GT	OV.	OV.	328VDC	212VDC	OV.	66VDC	6.5VAC	9VDC
8	5Y3GT/G	OV.	348VDC	113VAC	320VAC	OV.	320VAC	348VDC	348VDC

TAKEN WITH VACUUM TUBE VOLT-METER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0Ω	0Ω	250Ω	3 Meg.	250Ω	82KΩ	.1Ω	60KΩ
2	6SA7	0Ω	0Ω	60KΩ	83KΩ	20KΩ	.5Ω	.1Ω	2.7 Meg.
3	6SK7	0Ω	0Ω	270Ω	2.2 Meg.	270Ω	82KΩ	.1Ω	60KΩ
4	6SQ7	0Ω	15 Meg.	0Ω	2.2 Meg.	500KΩ	580KΩ	.1Ω	0Ω
5	6J5	0Ω	0Ω	150KΩ	60KΩ	580KΩ	50KΩ	.1Ω	58KΩ
6	6V6GT	0Ω	0Ω	60KΩ	60KΩ	220KΩ	110KΩ	.1Ω	110Ω
7	6V6GT	0Ω	0Ω	60KΩ	60KΩ	220KΩ	93KΩ	.1Ω	110Ω
8	5Y3GT/G	0Ω	60KΩ	INF.	140Ω	INF.	130Ω	60KΩ	60KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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STAGE GAIN MEASUREMENTS

RF GRID TO CONV. GRID	10X	600KΩ
CONV. GAIN	20X	IN 600KΩ
		OUT 455KC
1st IF TRANS.	.3X	455KΩ
IF TUBE	.25X	455KΩ
2nd IF TRANS.	.65X	455KΩ
AUDIO	.43X	400Ω
INV.	.5X	400Ω
OUTPUT	.30X	400Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4720-28

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



SPARTON MODEL 5A116

TRADE NAME	Sparton, Models 5A116, 5AW16 (Ch. 5-16)		
MANUFACTURER	Sparks-Withington Co., Jackson, Mich.		
TYPE SET	AC-DC Operated Superheterodyne with Loop Ant.		
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.		
POWER SUPPLY	110-120 Volts AC-DC		
TUNING RANGE—BROADCAST	530-1650KC	RATING	.250 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

RMA dummy consists of 200 MMFD cap. in series with 20 micro henry choke. The choke shunted by by a 400 MMFD cap. in series with 400Ω carbon resistor.
To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.
Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 RMA DUMMY	High side to Pin 6 (grid) 12SA7. Low side to B-.	456KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	Loop	1500KC	1500KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3	"	"	Tune for maximum output.	"	A6	Adjust for maximum output.

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Printed in U. S. of America
DATE 12/47 SET #30 FOLDER #4720-29

PARTS LIST AND DESCRIPTIONS
 TUBES (SYLVANIA or Equivalent)

SPARTON MODELS
 5A116, 5A116 (Ch. 5-16)

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		SPARTON PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
		SPARTON PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	40 CAP. 150V	PA4301-1	2N514	DSB-2X40-150	TA-240	PRSA150-40-20	BRD4215	Filter - Yellow
7B	20 CAP. 150V	PC40G1-503	TP426	MPH-4-05	TC-15	484-05	DT485	Line Filter
8	.05 CAP. 200V	PC40G1-103	TP421	S-4-01	TC-11	484-01	DT451	Output Plate Bypass
9	.01 CAP. 400V	PC40G1-203	TP405	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
10	.002 CAP. 600V	PC40G1-103	TP421	S-4-01	TC-11	484-01	DT451	AVC Filter
11	.01 CAP. 400V	PC40G1-503	TP426	S-4-05	TC-15	484-05	DT485	RF Bypass Power Supply
12	.15 CAP. 200V	PC40G1-154	TP417	S-4-2	TC-1	464-15	DT485	Ext. Ant. Coupling
13	.05 CAP. 400V	PC40G1-503	TP426	S-4-05	TC-15	484-05	DT485	AF Plate Bypass
14	.001 CAP. 500V	PC40G1-302	TP404	MO-5-35	TC-21	484-001	DT6D1	Diode RF Filter
15	530 CAP. 500V	MC60G-511	MC245	MO-5-35	1FM-35	1466-0005	5W5T5	
16	270 CAP. 500V	MC60G-271	MC240	MO-5-325	1FM-325	1466-00025	5W5T25	

CONTROLS

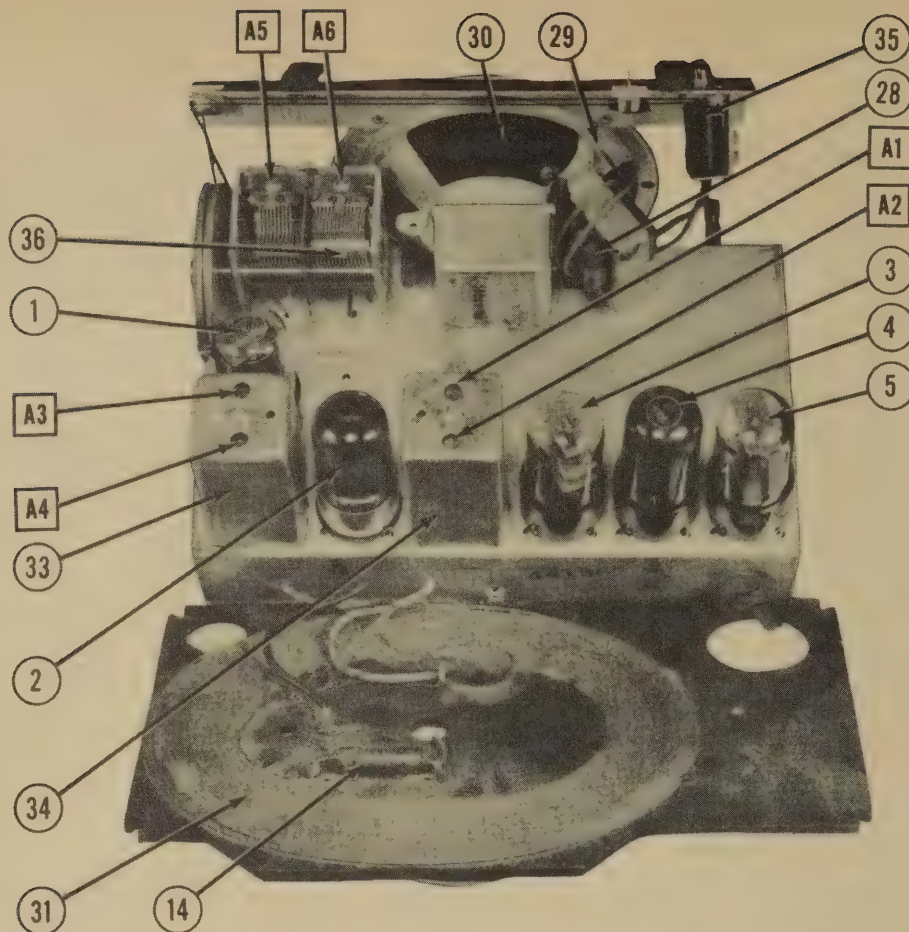
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SPARTON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	1500KΩ RESIST. 1/2 WATTS	PA-4400-3	PK401	D13-133	AM-60-Z	Volume Control
17B	1500KΩ RESIST. 1/2 WATTS	Not Req.	Not Req.	E	KSS-3	Attach to 17A per instructions
17C	Switch	Not Req.	125	41	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		SPARTON PART No.	MALLORY PART No.	IRC PART No.	
18	150KΩ RESISTANCE 1/2 WATTS	BR12N-154	BTS-150K	BTS-22K	Br.-Grn.-Yl. Line Isolation
19	22KΩ RESISTANCE 1/2 WATTS	BR12N-223	BTS-22K	BTS-15 Meg.	Red-Red-Or. Oscillator Grid
20	15 Meg. RESISTANCE 1/2 WATTS	BR12N-156	BTS-15 Meg.	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
21	2.2 Meg. RESISTANCE 1/2 WATTS	BR12N-225	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
22	5.6 Meg. RESISTANCE 1/2 WATTS	BR12N-565	BTS-5.6 Meg.	BTS-5.6 Meg.	Grn.-Blue-Grn. AF Grid
23	220KΩ RESISTANCE 1/2 WATTS	BR12N-224	BTS-220K	BTS-220K	Red-Red-Yl. AF Plate Load
24	470KΩ RESISTANCE 1/2 WATTS	BR12N-474	BW-4-150	BW-4-150	Yl.-Vi.-Yl. Output Grid
25	150Ω RESISTANCE 1/2 WATTS	CR12N-151	BW-4-150	BW-4-150	Br.-Grn.-Br. Output Cathode
26	1200Ω RESISTANCE 1/2 WATTS	CR12N-122	BW-4-1200	BW-4-1200	Br.-Red-Red Filter
27	82Ω RESISTANCE 1/2 WATTS	BR12N-820	BW-4-82	BW-4-82	Gray-Red-Blk. Pilot Light Shunt

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		SPARTON PART No.	STANCOR PART No.	THORDARN PART No.	
28	IMPEDANCE PRI. SEC. PRI. SEC.	Part of PC-63000-3	A-3576	T22845	A-2928
29	3.4Ω SEC. 180Ω PRI. .62 SEC.				



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA	INSTALLATION NOTES
	FIELD	SPARTON PART No.	JENSEN PART No.
29	VC IMP.	ST-107	
	PK	PC-63000-3	Mod. P5-V
30	CONC DIA.	NOT READILY REPLACABLE—USE COMPLETE SPEAKER UNIT	
	VC DIA.		
	1/2"		

R F COILS

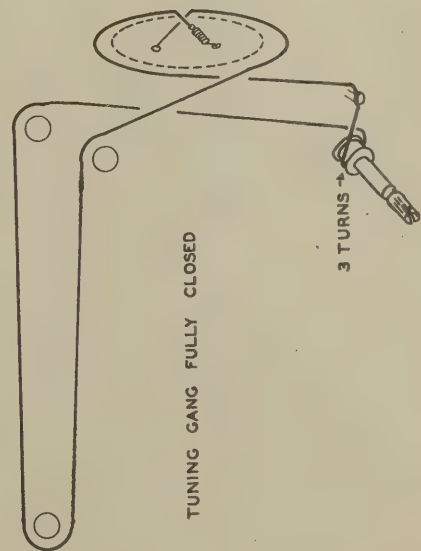
ITEM No.	USE	DC RES.	SPARTON PART No.	MEISSNER PART No.	REPLACEMENT DATA
		PRI.	SEC.		
31	Loop Ant.	19	.89	AB43025-1	
32	Osc. Coil	.69	5.58	AA6797-1	
33	Input IF	108	108	AA6800-12	
34	Output IF	82	72	AA6800-2	1Add 50MFD from grid to high side tuning cap.

DIAL LIGHT

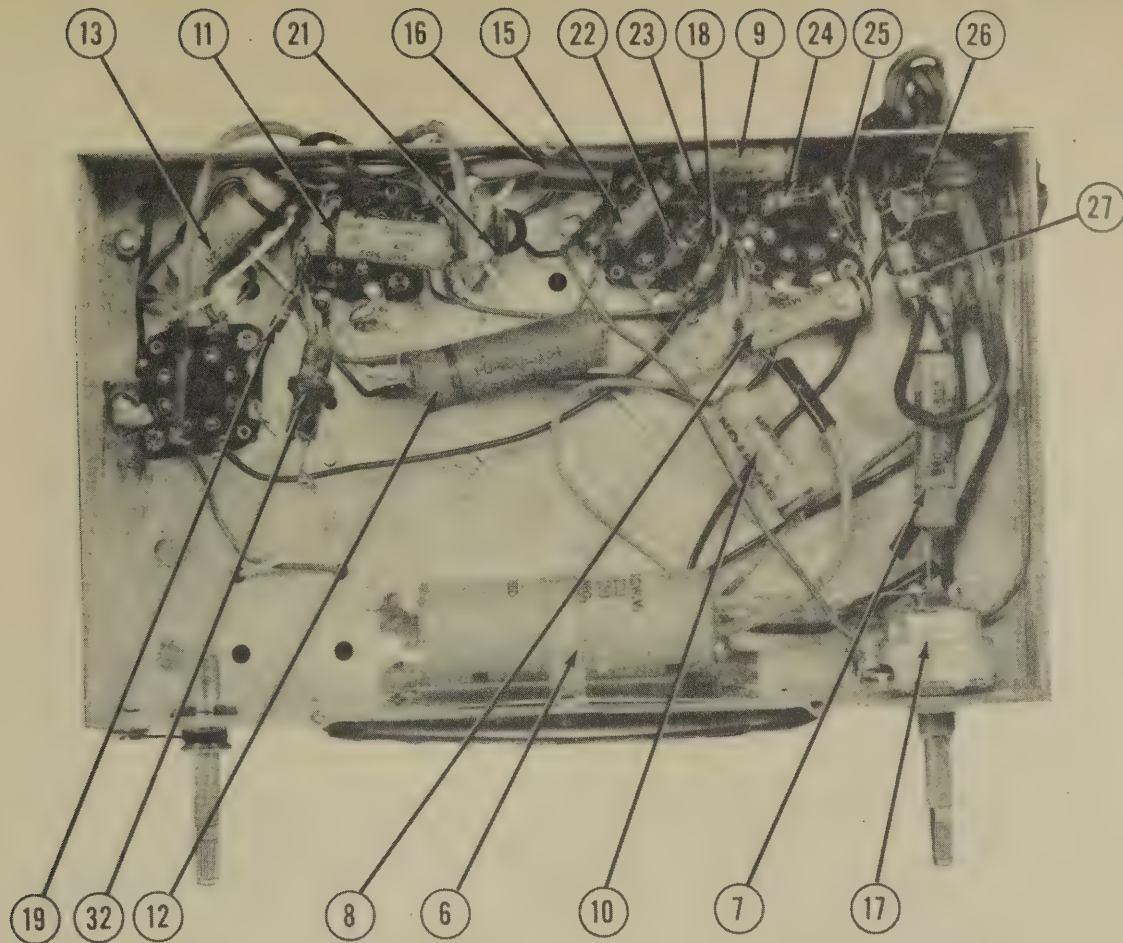
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA	INSTALLATION NOTES
					SPARTON PART No.	
35	Bayonet	6-8	.15A	Brown	PA-4100-2	Type 47

MISCELLANEOUS

ITEM No.	PART NAME	SPARTON PART No.	NOTES
36	2 Gang Var. Cap. Knob	PH40406 PA5601-2	(17-462 VWF, 35-204VTF) Ivory
	Pointer	PA5601-4 PA5402	Walnut

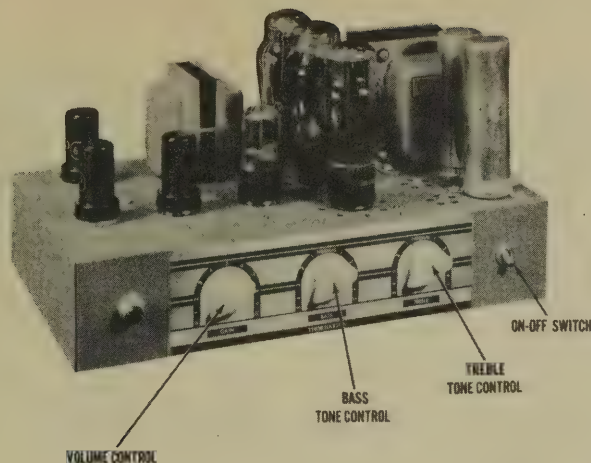


CHASSIS—BOTTOM VIEW



SPARTON MODELS
5A116, 5A116 (Ch. 5-16)

SPARTON MODELS
5A116, 5A116 (Ch. 5-16)



THORDARSON MODEL T-31W10A

TRADE NAME	Thordarson, Model T-31W10A		
MANUFACTURER	Thordarson Elect. Mfg. Div., Maguire Ind., Inc., 500 W. Huron St., Chicago 10, Ill.		
TYPE SET	AC Operated Phono Amplifier		
TUBES (SEVEN)	Types, 6SJ7 Mic. Amp., 6SJ7 AF Amp., 6J5 Tone Amp., 6SN7GT AF-Phase Inv., (2) 6B4G Power Output, 5U4G Rectifier.		
POWER SUPPLY	110-120 Volts AC	RATING	- 1.38 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	0V.	3.2VAC	2VDC	0V.	2VDC	40VDC	3.2VAC	57VDC
2	6SJ7	0V.	3.2VAC	1.8VDC	0V.	1.8VDC	60VDC	3.2VAC	115VDC
3	6J5	0V.	3.2VAC	180VDC	0V.	40VDC	0V.	3.2VAC	53VDC
4	6SN7	0V.	165VDC	7.9VDC	0V.	180VDC	7.9VDC	3.2VAC	3.2VAC
5	6B4G	0V.	72VDC*	420VDC	0V.	0V.	0V.	72VDV*	0V.
6	6B4G	0V.	72VDC*	420VDC	0V.	0V.	0V.	72VDC*	0V.
7	5U4G	72VDC	440VDC	0V.	400VAC	0V.	400VAC	430VDC	440VDC

NOTE: READ 6.6 VOLTS AC BETWEEN PINS 2 AND 7 ON TUBES 5 AND 6.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	0Ω	.1Ω	1KΩ	1 Meg.	1KΩ	1 Meg.	.1Ω	260KΩ
2	6SJ7	0Ω	.1Ω	1KΩ	0Ω	1KΩ	270KΩ	.1Ω	60KΩ
3	6J5	0Ω	.1Ω	56KΩ	INF.	230KΩ	INF.	.1Ω	25KΩ
4	6SN7	220KΩ	125KΩ	2.2KΩ	230KΩ*	125KΩ	2.2KΩ	.1Ω	.1Ω
5	6B4G	INF.	850Ω	17KΩ	INF.	450KΩ	INF.	850Ω	INF.
6	6B4G	0Ω	850Ω	17KΩ	INF.	450KΩ	INF.	850Ω	INF.
7	5U4G	850Ω	17KΩ	INF.	680Ω	INF.	630Ω	17KΩ	17KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 6 - All controls at minimum, proper output load connected for measurements.

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DATE 12/47 SET #30 FOLDER #4720-30

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

THORDARSON
MODEL T-31M10A

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		THORDARSON PART No.	STANDARD REPLACEMENT		
1	Mic. Amp.	6SJ7	6SJ7	8N	
2	AF Amp.	6SJ7	6SJ7	8N	
3	Tone Amp.	6J5	6J5	6Q	
4	AF-Phase Inv.	6SN7GT	6SN7GT	8BD	
5	Power Output	6B4-G	6B4-G	5S	
6	Power Output	6B4-G	6B4-G	5S	
7	Rectifier	5U4-G	5U4-G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

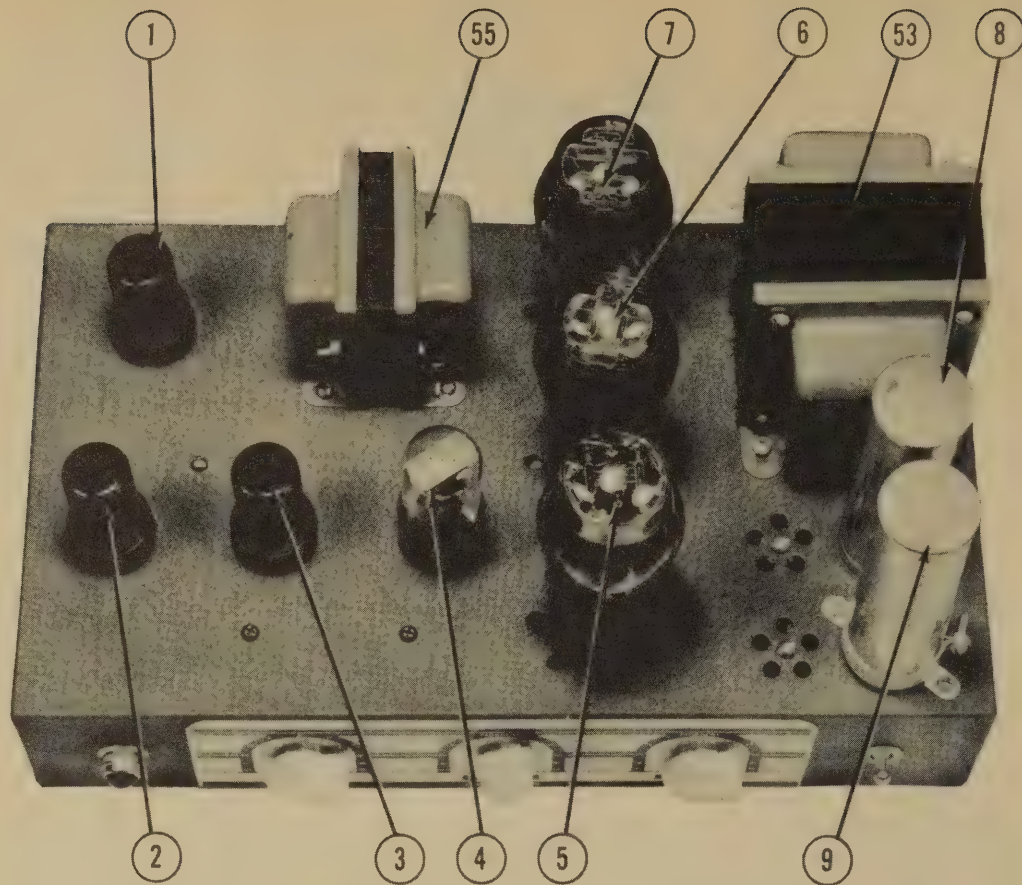
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		THORDARSON PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
8	8 600	HS693		D-8-600	AP-86	KR-608
9A	8 475	TC92		DL-8-525	GL-88	GLA75-8-8
B	8 475	TC92		DL-8-525	GL-88	KR-608
10	10 450	TC92		M-10-450	UT-12	BR1045
11	10 450	TC72		M-10-450	UT-12	BR1045
12	40 150	TC72		M-40-150	UT-401	PR8450-10
13	1 400	TP428		S-4-1	TC-1	PR8150-40
14	1 400	TP428		S-4-1	TC-1	BR4015
15	1 400	TP428		S-4-1	TC-1	DT4P1
16	1 400	TP428		S-4-1	TC-1	DT4P1
17	1 400	TP428		S-4-1	TC-1	DT4P1
18	1 400	TP428		S-4-1	TC-1	DT4P1
19	1 400	TP428		S-4-1	TC-1	DT4P1
20	1 400	TP428		S-4-1	TC-1	DT4P1
21	1 400	TP428		S-4-1	TC-1	DT4P1
22	1 400	TP428		S-4-1	TC-1	DT4P1
23	1 400	TP428		S-4-1	TC-1	DT4P1
24	1 400	TP428		S-4-1	TC-1	DT4P1

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		THORDARSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
25A	1 Meg. 1/2		MR53	D13-137	M-63-Z	Audio Gain Control
26	40KΩ-1MΩ		Not Req.	A	Not Req.	Attach to 25A per instructions
27	40KΩ-1MΩ		Not Req.	A	Not Req.	Treble Control

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IRC PART No.	IDENTIFICATION CODES
		THORDARSON PART No.	WATTS		
28	1 Meg.		1	BTS-100K	Br.-Blk.-Grn. Mic. Amplifier Grid
29	100KΩ		1	BTS-100K	Br.-Blk.-Grn. Mic. Amplifier Cathode
30	100KΩ		1	BTS-100K	Br.-Blk.-Yl. Mic. Amplifier Cathode Bleeder
31	1 Meg.		1	BTS-100K	Br.-Blk.-Grn. Mic. Amplifier Screen Dropping
32	220KΩ		1	BTS-220K	Red-Red-Yl. Mic. Amplifier Plate Load
33	22KΩ		1	BTS-22K	Red-Red-Or. Feedback
34	100KΩ		1	BTS-100K	Br.-Blk.-Red 1st AF Cathode
35	220KΩ		1	BTS-220K	Red-Red-Yl. 1st AF Screen Dropping
36	22KΩ		1	BTS-22K	Red-Red-Or. 1st AF Plate Load
37	22KΩ		1	BTS-22K	Red-Red-Or. Filter
38	220KΩ		1	BTS-220K	Red-Red-Yl. Tone Amplifier Grid
39	220KΩ		1	BTS-220K	Red-Red-Red Tone Amplifier Cathode
40	22KΩ		1	BTS-22K	Red-Red-Or. Tone Amplifier Cathode
41	22KΩ		1	BTS-22K	Red-Red-Or. Tone Amplifier Plate Load
42	220KΩ		1	BTS-220K	Red-Red-Yl. 2nd AF Grid
43	220KΩ		1	BTS-220K	Red-Red-Red 2nd AF Cathode
44	100KΩ		1	BTS-100K	Br.-Blk.-Yl. 2nd AF Plate Load



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	THORDARSON PART No.	IRC PART No.		
45	100K Ω	1	BTS-100K		Br.-Blk.-Yl. Phase Inverter Plate Load	
46	220K Ω	1	BTS-220K		Red-Red-Yl. Output Grid	
47	220K Ω	1	BTS-220K		Red-Red-Yl. Output Grid	
48	220K Ω	1	BTS-220K		Red-Red-Yl. Output Grid	
49	22K Ω	1	BTA-22K		Red-Red-Or. Filter	
50	10K Ω	1	BTA-10K		Br.-Blk.-Or. Filter	
51	20K Ω	25	DT-15K		Bleeder	
59	850 Ω	10	ABA-1000 Ω		Bias Net.	

*Set slider at 850 Ω .

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES	
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	THORDARSON PART No.	STANCOR PART No.	MERIT PART No.	
52	.165A	95 Ω	T-49809C	C-2209*		

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		MERIT PART No.
	PRI.	SEC. 1	SEC. 2	THORDARSON PART No.	STANCOR PART No.	
53	117V AC @ 1.1A	720VCT @ 1.15A	5.0V AC @ 3.0A	T-49810C		P-4004*

*Drill new mounting holes.

(TONE) CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES	
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	THORDARSON PART No.	STANCOR PART No.	MERIT PART No.	
54		200 Ω	T-40387A	T-20074*		

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	THORDARSON PART No.	STANCOR PART No.	MERIT PART No.	
55	5600 Ω 4 Ω CT	430 Ω .5 Ω CT	T-49812A	A-3600*	A-3131*	*Drill new mounting holes.

DIAL LIGHT

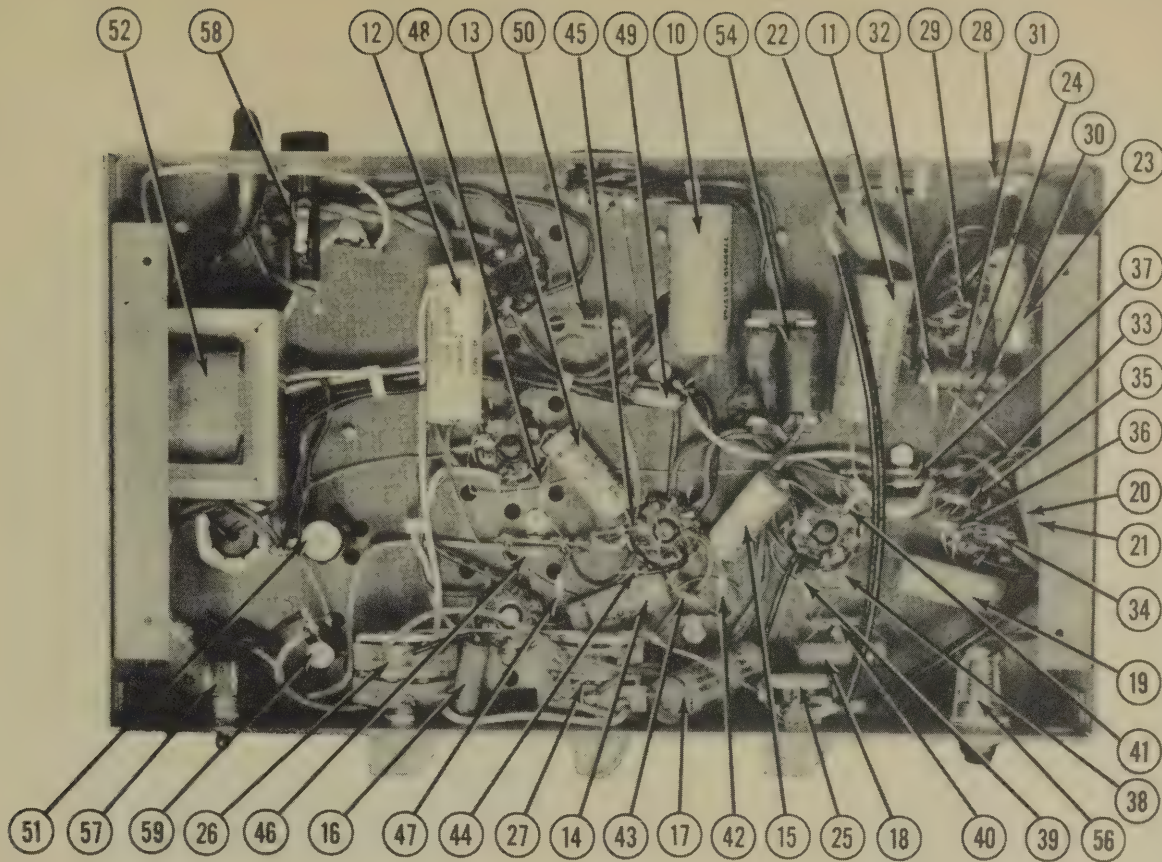
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	THORDARSON PART No.	
56	Screw	8-8	0.15	Brown		Type 40

MISCELLANEOUS

ITEM No.	PART NAME	THORDARSON PART No.	NOTES
57	On-Off Switch		
58	Fuse		SPST 3 Amp.

THORDARSON
MODEL T-31W10A

CHASSIS—BOTTOM VIEW



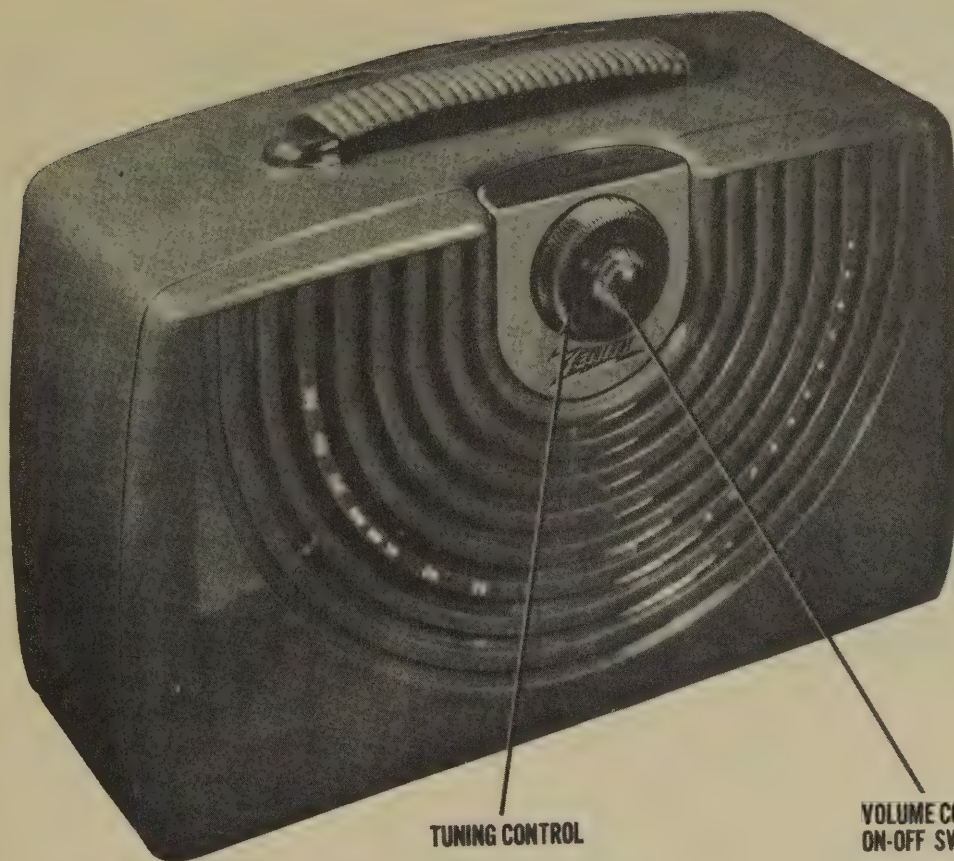


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ZENITH MODELS 5G003Z (Ch. 5C40Z),
5G003ZZ (Ch. 5C40ZZ)
BATTERY-LINE OPERATED

ZENITH MODELS 5G003Z (Ch. 5C40Z),
5G003ZZ (Ch. 5C40ZZ)
BATTERY-LINE OPERATED



ZENITH MODELS 5G003Z (Ch. 5C40Z),
5G003ZZ (Ch. 5C40ZZ)
BATTERY-LINE OPERATED

ZENITH MODEL 5G003ZZ (Ch. 5C40ZZ)

TRADE NAME	Zenith, Models 5G003ZZ (Ch. 5C40ZZ), 5G003Z (Ch. 5C40Z)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Ill.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 1LB4 Power Output.
POWER SUPPLY	110-120 Volts AC-DC or 6 Volts "A" Supply and 75 Volts "B" Supply in Pack Form
RATING	.110 Amp. @ 117 Volts AC or 52MA @ 6 Volts DC and 9MA @ 75 Volts DC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully open and set pointer to reference mark at high freq. end of dial.
Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.5 MFD.	High side to Pin 6 (grid) 1LA6. Low side to B-.	455KC	600KC	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation, transformer reduce dummy ant. to 200MFD to reduce hum modulation.
2		Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 12/47 SET #30 FOLDER #4720-31

CHASSIS—TOP VIEW

ZENITH MODELS 59003Z2 (Ch. 5040ZZ),
59003Z (Ch. 5040Z) BATTERY-LINE OPERATED

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		ZENITH PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Converter	1LA6	1LA6	7AK	
2	1st Amp.-AF	1LA5	1LA5	7AO	
3	Det.-AVC-AF	1LA4	1LA4	5AG	
4	Power Output	1LB4	1LB4	5AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		ZENITH PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
5A	40	22-1081	FP3541	DY-40-150/20	EL-2221 AF44D40A1	UP40150
5B	25	22-1014	FP211	DY-2x20-150	EL-221 AF44D	UP2215
6A	20	22-1017	TP426	MPH-4-05	TC-15 494-05	DT495
6B	20	22-827	TP428	S-4-1	TC-1 484-1	DT4P1
7	.05	22-827	TP428	S-4-1	TC-1 484-1	DT4P1
8	.1	200	TP428	S-4-05	TC-15 484-05	DT495
9	.1	200	TP426	S-4-05	TC-23 684-003	DT6B3
10	.003	200	TP406	S-6-003	TC-11 684-01	DT6D1
11	.003	600	TP410	S-6-01	TC-22 684-002	DT6D2
12	.01	200	TP426	S-4-05	TC-15 484-05	DT495
13	.002	200	TP426	S-4-05	TC-15 484-05	DT495
14	.05	200	TP426	S-4-05	TC-15 484-05	DT495
15	.05	200	TP426	S-4-05	TC-15 484-05	DT495
16	.1	200	TP426	S-4-05	TC-15 484-05	DT495
17	.05	200	TP426	S-4-05	TC-15 484-05	DT495
18	.05	200	TP426	S-4-05	TC-15 484-05	DT495
19	150	500	MC236	M0.5-315	1FM-315 1468-00015	SW5T15
20	100	500	MC235	M0.5-31	1FM-31 1468-0001	SW5T1
21	100	500	MC235	M0.5-31	1FM-31 1468-0001	SW5T1

Note 1 - Not used in Model 59003Z. 1Parallel sections to obtain desired capacity.

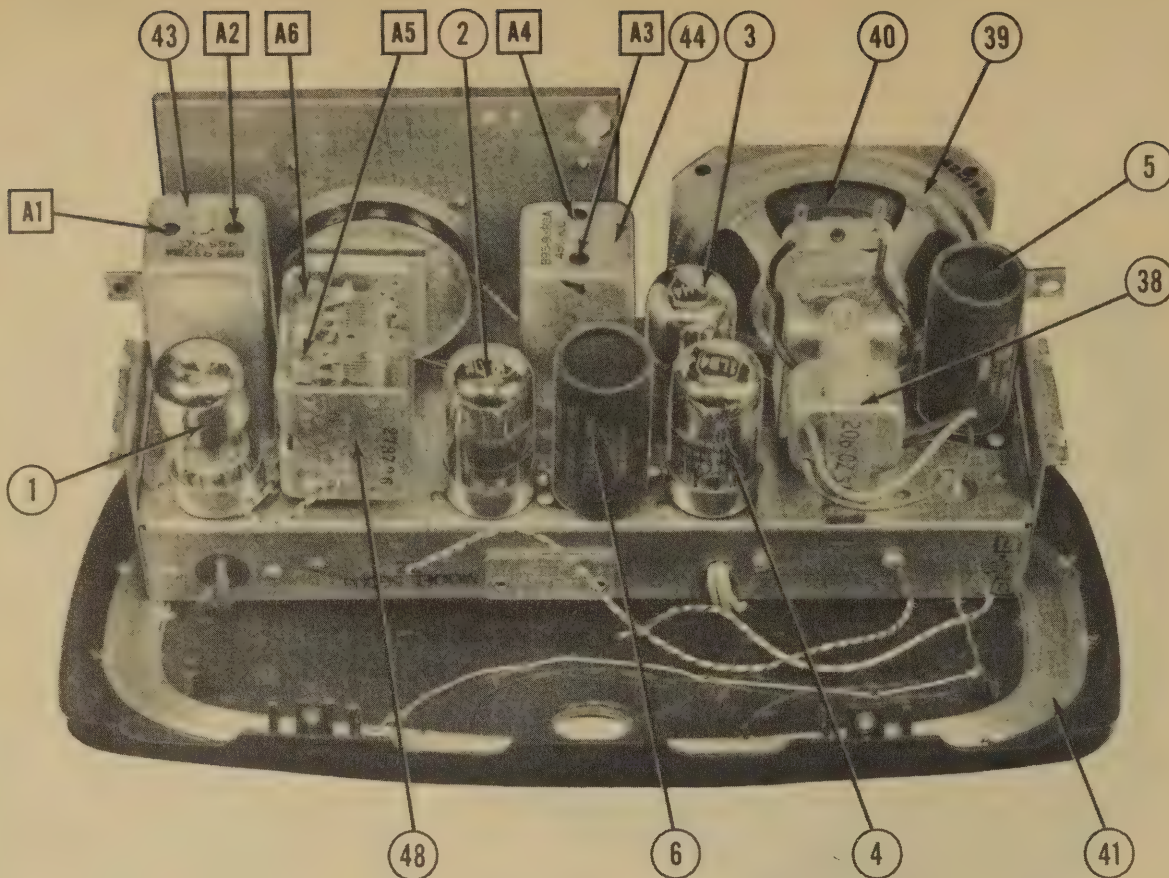
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		ZENITH PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22	1 Meg.	63-1549				Volume Control & Switch

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		ZENITH PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
23	180K Ω	63-654	BTS-190K	BTS-190K	Br-Gray-VI	Oscillator Grid
24	220K	63-579	BW-1-220	BW-1-220	Red-Red-Br.	Parasitic Suppressor-See Note
25	220K	63-296	BTS-220K	BTS-220K	Red-Red-VI	Converter Grid
26	33K Ω	63-646	BTS-33K	BTS-33K	Or-Or-Or	Converter Screen Dropping
27	4.7 Meg.	63-802	BTS-4.7 Meg.	BTS-4.7 Meg.	VI-VI-Or	IF Grid
28	2.2 Meg.	63-800	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn.	AVC Network
29	15 Meg.	63-976	BTS-15 Meg.	BTS-15 Meg.	Br-Grn.	Blue AF Grid
30	1 Meg.	63-271	BTS-1 Meg.	BTS-1 Meg.	Br-Brk.	Grn. AF Plate Load
31	2.2 Meg.	63-600	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn.	Output Grid
32	820 Ω	63-1097	BTA-820	BTA-820	Gray-Red-Br.	Filament String
33A	1008 Ω	63-1363	AB-1000	AB-1000		Filament Dropping
34	33 Ω	63-1099	AB-33	AB-33	Or-Or-Blk.	Filament String
35	2700 Ω	63-439	BTS-2700	BTS-2700	Red-VI.	Red Filter
36	180 Ω	63-627	BW-180	BW-180	Br-Gray-Br.	Bias
37	140 Ω	63-1366	AB-150	AB-150		Rectifier Ballast

Note-Used in Model 59003Z only.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ZENITH PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
38	13000Ω	3.1Ω	620Ω	.8Ω	206-540	A-3856	T22848	A-2832	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	ZENITH PART No.	JENSEN PART No.	
39	PM	3.5Ω		ST-113	
40	CONE DIA.	VC DIA.	49-540	Mod. P4-X	
40	4"	1/2"	208-540		

R F COILS

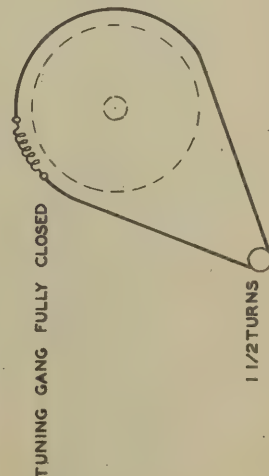
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	
41	Loop Ant.		1.5Ω	24-371		42A used in model 5G003ZZ
42A	Osc. Coil	3.5Ω	7Ω	S-11830	14-1040	43B "
B	Osc. Coil	3.5Ω	7Ω	S-13765	14-1040	5G003Z. (Add 50MFD
43	Input IF	18Ω	18Ω	95-937	16-6658	from Item 24 to high side tuning cap.)
44	Output IF	18Ω		95-938	16-6670	

BATTERIES

ITEM No.	VOLTAGE	ZENITH PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"		
				"A-B"		
45	6V "A" 75V "B"	Z-6394				

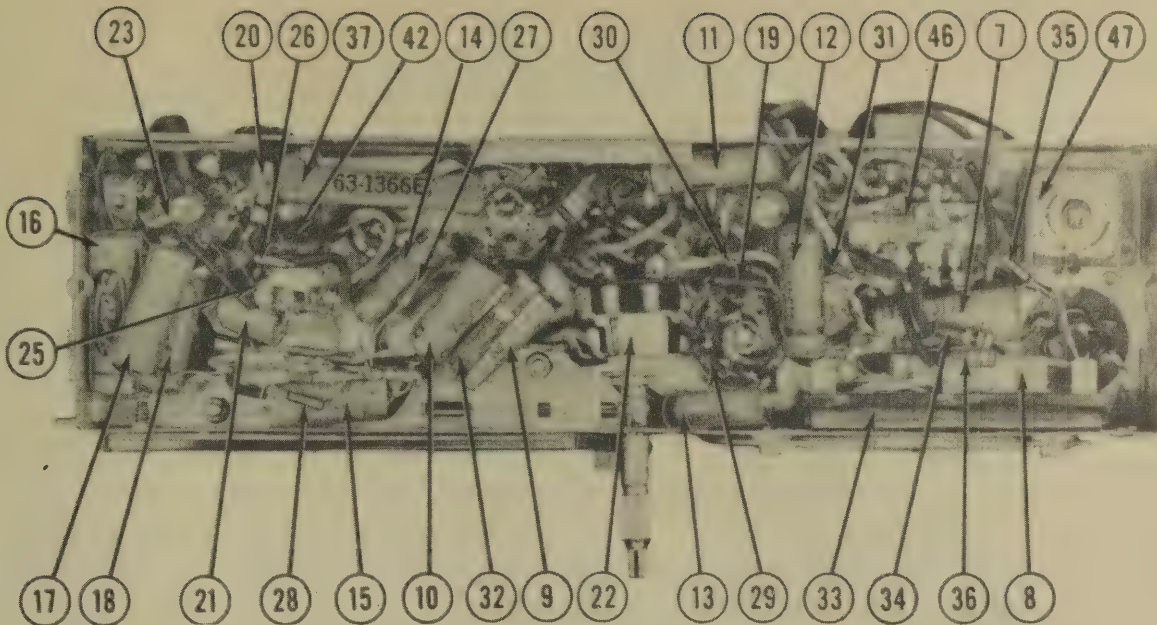
MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
46	Switch	35-367	AC-DC-Batt.
47	Rectifier	212-2	Selenium
48A	2 Gang Var. Cap	23-1653	(20-468MμF, 22-152MμF)
B	Dial Glass	22-1450	Used in Model 5G003Z
	Dial Pointer	192-99	
		59-164	



DIAL CORD DRIVE

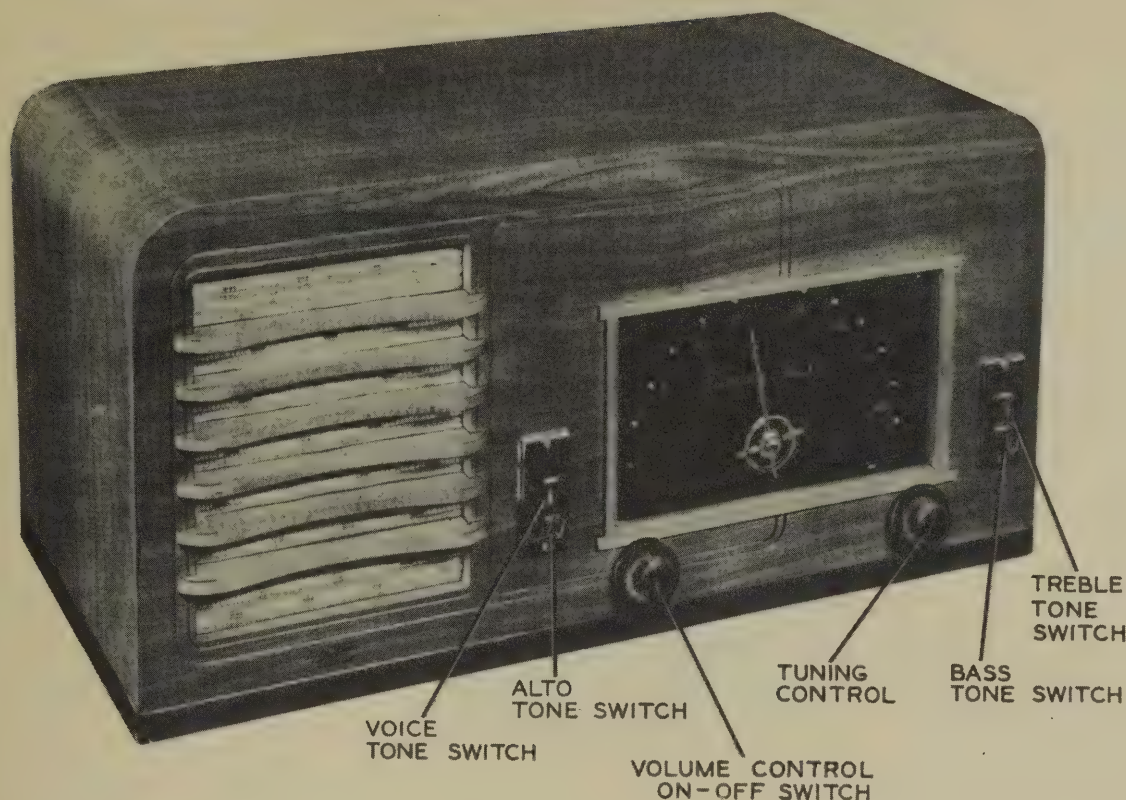
CHASSIS—BOTTOM VIEW



ZENITH MODELS 5G003ZZ (Ch. 5C40ZZ), 5G003Z (Ch. 5C40Z) BATTERY-LINE OPERATED

ZENITH MODELS 5G003ZZ (Ch. 5C40ZZ), 5G003Z (Ch. 5C40Z) BATTERY-LINE OPERATED

ZENITH MODEL 5G036
(Ch. 5C51) BATTERY-LINE OPERATED



ZENITH MODEL 5G036
(Ch. 5C51) BATTERY-LINE OPERATED

ZENITH MODEL 5G036 (Ch. 5C51)

TRADE NAME	Zenith, Model 5G036 (Ch. 5C51)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Ill.
TYPE SET	Three Power Operated Superheterodyne Receiver
TUBES (FIVE)	Types, 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 1LB4 Power Output, 117Z6GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC or 6 Volts DC "A" Supply and 75 Volts DC "B" Supply in Pack Form
POWER SUPPLY	.160 Amp. @ 117 Volts AC or 51MA @ 6 Volts DC and 10MA @ 75 Volts DC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.

Use battery power when available. IF AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .5 MFD.	High side to Pin 6 (grid) 1LA6. Low side to B-.	455KC	600KC	Across voice coil	A1,A2, A3,A4	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200MFD to reduce hum modulation.
2 200MFD	High side to ext. ant. lead (blue). Low side to ext. ground lead (black).	1600KC	1600KC	"	A5	Adjust for maximum output.
3 200MFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

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DATE 12/47 SET #30 FOLDER #4720-32

PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

ZENITH MODEL 53036 (Ch. 501)
BATTERY-LINE OPERATED

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		ZENITH PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Converter	11A6	11A6	7AK	
2	1P Amp.	11N5	11N5	7AO	
3	Det.-AVC-AF	11H4	11H4	5AG	
4	Power Output	11B4	11B4	5AD	
5	Rectifier	117Z6GT	117Z6GT	73	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	ZENITH PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.		
6A	40	150	22-1026	FP3061	DY-4020-150	EL-24	AF444D*	UP4215	■ Filter
7A	20	150	22-1027	FP217	DY-2x20-150	EL-22	AF44D	UP2045C	▲ "
8	25	600							
9	600	22-492	TP405	S-6-002	TC-22	684-002	DT6D2	▲ Filament Bypass	
10	600	22-196	TP410	S-6-01	TC-11	684-01	DT6S1	▲ Output Plate Bypass	
11	600	22-492	TP405	S-6-002	TC-22	684-002	DT6D2	▲ Audio Coupling	
12	600	22-448	TP407	S-6-004	TC-24	684-004	DT6D4	▲ Tone Compensation	
13	600	22-887	TP404	S-6-001	TC-21	684-001	DT6D1	▲ "	
14	600	22-829	TP426	S-4-05	TC-15	484-05	DT4S5	▲ Rf Bypass Power Supply	
15	200	22-827	TP428	S-4-1	TC-1	484-1	DT4P1	▲ Filament Bypass	
16	1	200	TP428	S-4-1	TC-1	484-1	DT4P1	▲ Line Isolation	
17	1	200	TP428	S-4-1	TC-1	484-1	DT4P1	▲ Conv. Screen Bypass	
18	200	22-827	TP426	S-4-05	TC-15	484-05	DT4S5	▲ AVC Filter	
19	200	22-829	TP426	S-4-05	TC-15	484-05	DT4S5	▲ Ext. Ant. Isolation	
20	200	22-1183	TP421	S-4-01	TC-11	484-01	DT4S1	▲ Line Filter	
21	400	22-1017	TP426	MPI-4-05	TC-15	484-05	DT4S5	▲ Tone Compensation	
22	250	500	MC240	M0.5-325	1FM-325	1468-00025	SW5T25	▲ Osc. Plate Bypass	
23	150	500	MC236	M0.5-315	1FM-315	1468-00015	SW5T15	▲ As. Grid Capacitor	
24	100	500	MC235	M0.5-31	1FM-31	1468-0001	SW5T1	▲ Fixed Trimmer	
25	5	500	MC205	M0.5-55	MS-55	1468-00005	SW5V5		
26	5	500	MC205	M0.5-55	MS-55	1468-00005	SW5V5		

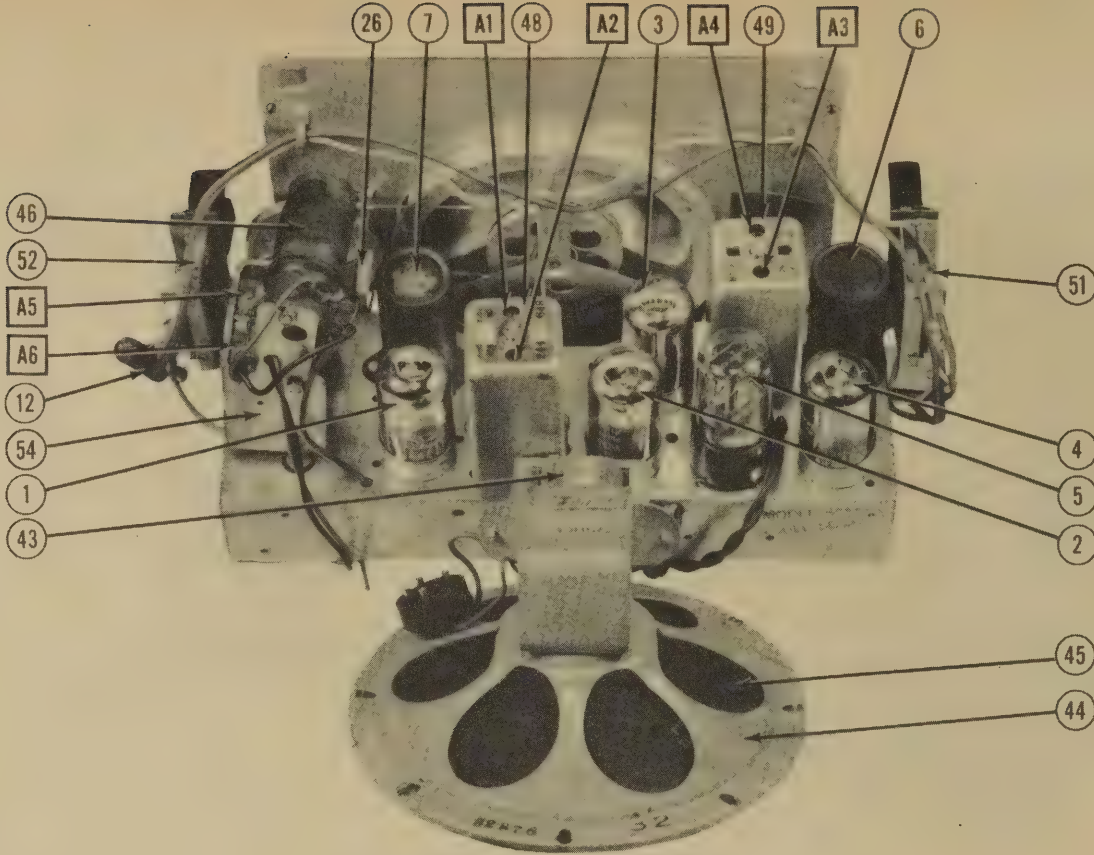
*Parallel sections to obtain desired capacity. †Do not use bypass section.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		ZENITH PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
27A	1 Meg. B Shaft C Switch	63-1236	TT243	D19-137X E 42	AT-112 KSS-3 SW-A2	Volume Control tapped @ 500KΩ Attach to 27A per Instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		ZENITH PART No.	MALLORY PART No.	IRC PART No.	
28	150W	63-654	BTS-180K	BTS-180K	Br.-Gray-VI. Oscillator Grid
29	330W	63-646	BTS-33K	BTS-33K	Or.-Or.-Or. Converter Screen
30	2.2 Meg.	63-600	BTS-600	BTS-600	Red-Red-Grn. AVC Network
31	68K	63-594	BTS-68K	BTS-68K	Blue-Gray-Gr. Tone Compensation
32	4700Ω	63-587	BTS-4700	BTS-4700	VI.-VI.-Red Filament String
33	4700Ω	63-587	BTS-4700	BTS-4700	VI.-VI.-Red
34	15 Meg.	63-976	BTS-15 Meg.	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
35	1 Meg.	63-271	BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
36	2.2 Meg.	63-600	BTS-2.2 Meg.	BTS-2.2 Meg.	Br.-Blk.-Grn. Output Grid
37	140Ω	63-1366	BW-2-130	BW-2-130	Red-Red-Grn. Surge Limiter
38A	1008Ω	63-1465	AB-1000	AB-1000	Filament Dropping
39	2700Ω	63-439	BTS-2700	BTS-2700	Red-VI.-Red Filter
40	180Ω	63-627	BW-180	BW-180	Br.-Gray-Br. Bias
41	820Ω	63-1558	BTA-820	BTA-820	Gray-Red-Br. Filament String
42	33Ω	63-1059	BW-33	BW-33	Or.-Or.-Blk.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.		ZENITH PART No.	THORDARN PART No.	MERIT PART No.	
43	PRI. SEC. 3.7Ω	PRI. SEC. 610Ω	3.3Ω	208-523	A-3823	T22887	A-2901

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.		ZENITH PART No.	JENSEN PART No.		
44	PRI. SEC. 3.7Ω	3.7Ω		49-523	ST-110		
45	CONE DIA. 6"	VC DIA. 1 1/16"		208-523	Mod. P6-V		

R F COILS

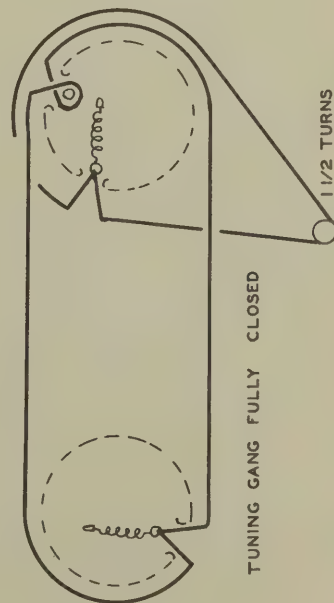
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.
46	Ant. Coil	24Ω	4.1Ω	8-11960	14-1028
47	Osc. Coil	6.3Ω	3.1Ω	8-12505	14-1040
48	Input IF	20Ω	19Ω	95-816	16-6670
49	Output IF	18.5Ω		95-817	

BATTERIES

ITEM No.	VOLTAGE	ZENITH PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
50	6V "A" 75V "B"	2682				

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
51	Switch	85-284	Voice-Alto
52	"	85-288	Treble-Bass
53	"	85-254	Power Change Over
54	2 Gang Var.Cap.	22-1216	(30-193MUF, 15-462MUF)



DIAL CORD DRIVE

TUNING GANG FULLY CLOSED

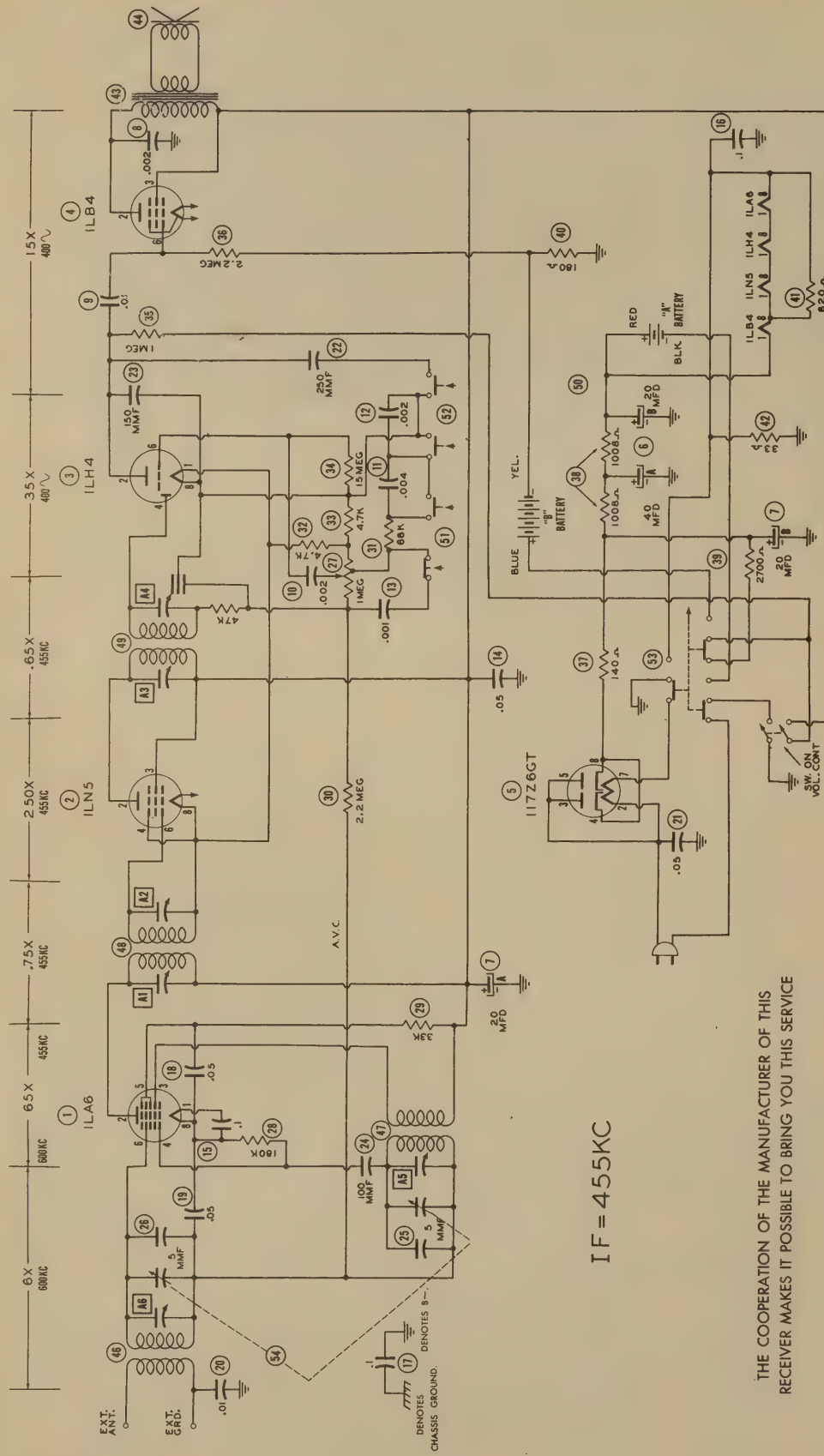
1 1/2 TURNS

CHASSIS—BOTTOM VIEW



ZENITH MODEL 5G036 (Ch. 5C51)
BATTERY-LINE OPERATED

ZENITH MODEL 5G036 (Ch. 5C51)
BATTERY-LINE OPERATED



IF = 455KC

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

VOLTAGE AND RESISTANCE READINGS TAKEN IN ACDC POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	3.4VDC	75VDC	75VDC	-6.4VDC	47VDC	.2VDC	1.8VDC	1.8VDC
2	1LA6	6.2VDC	75VDC	75VDC	4.8VDC	4.8VDC	4.8VDC	4.8VDC	4.8VDC
3	1LA6	4.8VDC	47VDC	OV.	.7VDC	OV.	OV.	OV.	OV.
4	1LA6	7.5VDC	75VDC	OV.	OV.	OV.	OV.	OV.	OV.
5	117Z6GT	OV.	117VAC	117VAC	117VAC	117VAC	117VAC	117VAC	117VAC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	*	4.8KΩ	4.8KΩ	190KΩ	38KΩ	3.3 Meg.	*	*
2	1LA6	*	4.8KΩ	4.8KΩ	*	75Ω	1NΩ	*	*
3	1LA6	1 Meg.	1NΩ	1NΩ	1NΩ	15 Meg.	0Ω	*	*
4	1LA6	*	5.2KΩ	4.8KΩ	0Ω	170Ω	2.5 Meg.	4.8KΩ	*
5	117Z6GT	1NΩ	250Ω	250Ω	2.2KΩ	250Ω	1NΩ	0Ω	2.2KΩ

* TAKEN WITH VACUUM TUBE VOLTMETER.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4720-32

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by connecting jumper from high side of volume control to low side.

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 1\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.

THIS ISSUE Two Complete Alignment Procedures With
INCLUDES... OSCILLOSCOPE WAVE FORMS...
For 8 New FM Receivers

PHOTOFACT* FOLDER SET No. 29

*TRADE MARK

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\$1.50
NET

IN THIS ENVELOPE: Complete Service Information on Webster Model 70 Record Changer

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The PHOTOFAC T Servicer

NOVEMBER 25, 1947



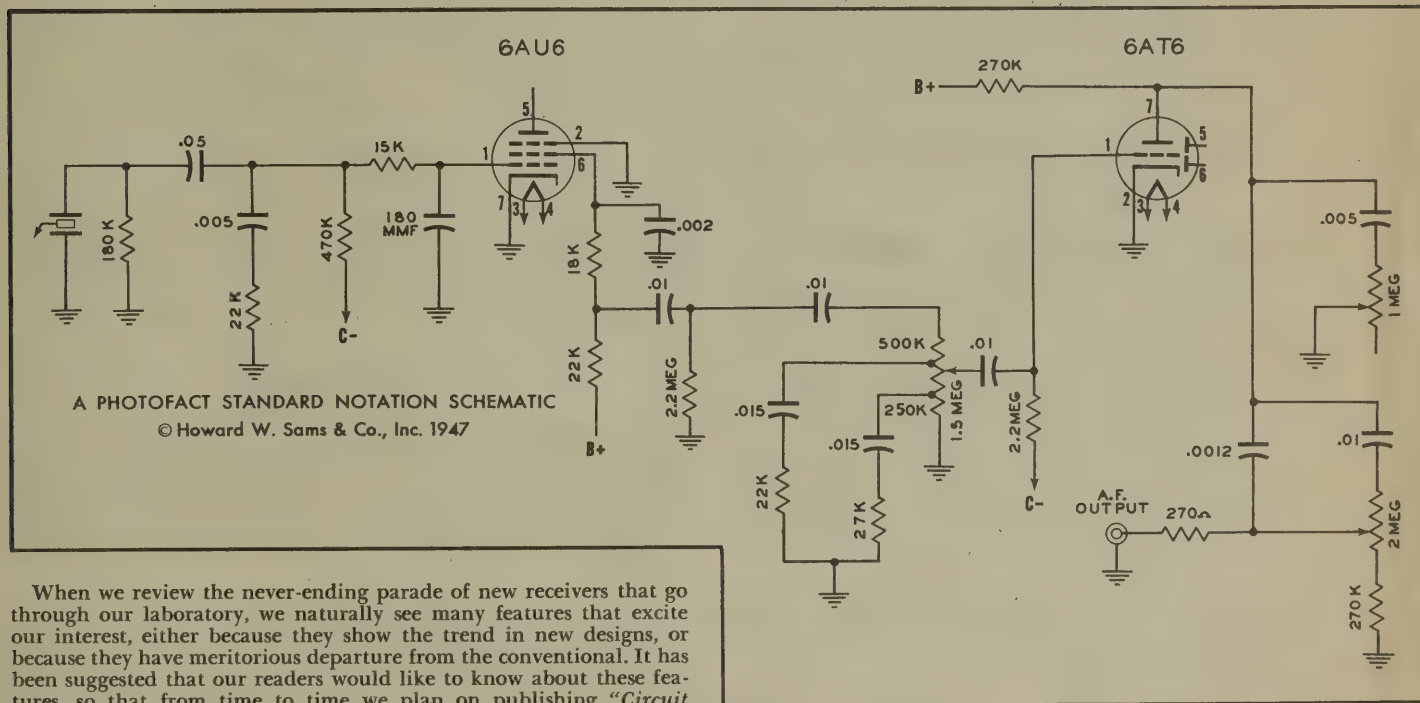
Published for all users of Howard W. Sams' Photofact Folders



VOL. 3, No. 29

ROBERT M. ELLIS, Editor

THE R.C.A. CRESTWOOD



When we review the never-ending parade of new receivers that go through our laboratory, we naturally see many features that excite our interest, either because they show the trend in new designs, or because they have meritorious departure from the conventional. It has been suggested that our readers would like to know about these features, so that from time to time we plan on publishing "Circuit Reviews" in the *SERVICER*.

The audio circuit of the R.C.A. Crestwood, Models 612V1, 612V2, 612V3 (Chassis RK-121 and RS-123), has a number of unique circuit features, that will be of interest to service technicians, especially those who are record fans, or who operate sound equipment. The following description of the audio system is our own, and does not necessarily represent the views of the manufacturer. In the limited space available, it is not possible to cover the design of the entire receiver, but the input audio system is well worthy of special attention.

Starting with the pickup, it will be noted that the crystal cartridge is shunted by a 180,000-ohm resistor. The value of this resistor governs the bass cut-off of the system, and is used to prevent over-amplification of the extreme bass tones. The Crestwood uses an undegenerated pentode output system which offers the advantage of raising output in the bass at the mechanical resonance of the speaker, and treble boost because of the rising impedance vs. frequency characteristic of the dynamic speaker. Bass boost is also provided by the tapped volume control circuit. It will be seen that these various bass boosts are additive, and it would be possible for these cumulative effects to result in bad tone unbalance without the controlling effect of this resistor.

Of course, it would be possible to control this bass amplification later in the circuit; but in this case the amplifier also serves as an audio channel for the radio tuner. It is desirable that the general balance of tone between the bass, middle register and treble should simulate that of the radio input so there will not be a shift of tone quality when switching from radio to phonograph and vice versa.

A second point of interest is the shunt type equalizer consisting of the .005 mfd. condenser and 22,000-ohm resistor connected across the cartridge. A crystal cartridge without a load generates voltage in proportion to the displacement of the needle; and if records were cut in this manner, no equalization would be required. This characteristic is called "Constant Amplitude," and is actually used on commercial

records from slightly above the bass cut-off frequency to the "turn-over" point, which varies in commercial shellac records between 250 and 800 cycles, depending on make. Above the turn-over point commercial records are supposed to be cut with constant velocity characteristics, in which the speed of motion of the needle is constant for a given degree of loudness, regardless of frequency. This characteristic results in halving the displacement of the needle for each octave of increasing frequency, and in crystal pickups this means a 6 d.b. drop in level for each octave. The elevation of bass thus obtained would not be objectionable if the turn-over point were in the true bass register; but the commercial turn-over point of 250-800 cycles also results in an elevated level in the baritone register. In a wide range audio system, this may result in a drumming or booming reproduction. The equalizer circuit discussed overcomes this.

Equalization is naturally obtained at the expense of level, and the voltage obtained after the highly equalized pickup is insufficient to "swing" the audio system of the "Crestwood," so that a triode pre-amplifier is used.

R.C.A. has adopted the unusual innovation of using the 6AU6 second i.f. amplifier tube as a medium mu triode, using the screen of the tube as the triode plate. In the simplified diagram reproduced here, the input is shown as going directly into the control grid of the 6AU6. Actually the audio goes through the secondary of the second i.f. transformer, so that the grid may receive either r.f. or audio input, without grid circuit switching.

The two resistors "18K" and "22K" in the screen circuit of the 6AU6 form an audio voltage divider and serve to adjust the level of the signal from the pickup so that the volume control will work through a usable range. This is especially necessary with a tapped control, so that the compensation will occur at desired volume levels.

Tapped volume controls are used to provide bass boost through

selective attenuation of the higher frequencies and, naturally, the lower the level the greater the desirable boost, because of the ear's natural insensitivity to bass tones at low levels. R.C.A. has gone a step further than the conventional by using a double-tapped control. Accordingly, the tone quality of the set is very good, even when playing at subdued levels.

In the output circuit of the 6AT6 are two tone controls; a "treble" control for progressively attenuating the high tones in the conventional manner, and a "bass" or low frequency control of unique design. When turned to the *full bass* position, the coupling condenser consists of a .0012 mfd. and a .01 mfd. condenser in parallel. In the *minimum bass* position, the coupling condenser consists of the .0012 mfd. unit, since the .01 mfd. capacitor has been effectively disconnected by the 2 megohms of resistance inserted in the circuit; and this with the 270 K grid leak effectively drops the bass out of the circuit. Naturally, intermediate settings of the control give intermediate values of bass.

The output of the tuner feeds into the R.C.A. RS-123 Audio and Power Supply Unit, which has an interesting selection of resistance values in the cathode type phase inverter to minimize hum and distortion. Details will be apparent from inspection of the schematic appearing in PHOTOFACT Folder 477-27 of Set 17, which covers the "Crestwood."

Is this "Circuit Review" interesting to you? Would you like to have similar analysis of other makes of sets? We can give you this feature if you desire it. Drop us a card, and tell us your wishes.

★ ★

THE FARNSWORTH TELEVISION MANUAL

A new volume called "The Farnsworth Television Manual" is sufficiently newsworthy and important to be brought to the attention of all PHOTOFACT subscribers interested in keeping up-to-date in television. The price is \$2.50, and the manual is published by the Farnsworth Television and Radio Corporation, Fort Wayne 1, Indiana.

Actually, "The Farnsworth Television Manual" consists of a paper-bound book, captioned "Television, The New Horizon," plus a group of pamphlets or brochures totaling some 250 pages. This material comprises a training program for television servicing, and is so used by Farnsworth. Included is the Maintenance Manual of Farnsworth Models GV220 and GV240 Receivers, a television dictionary, stage by stage descriptions of television circuits, test equipment and its use, and many other subjects. The treatment is non-mathematical and only a knowledge of radio service principles is needed to make the work understandable.

We have been told that the sale of the book is being restricted generally to television centers; and this fact alone keeps us from telling you that the book is in the "must" category if you contemplate entering the television service field.

★ ★

FIELD EXPERIENCES

Here is your opportunity for passing practical service experiences to others for the benefit of all. For every service "Field Experience" published, we issue to the author a certificate that is good for one PHOTOFACT Folder Set. Since it is impossible to verify the accuracy of contributions, we cannot be responsible for either the diagnosis made of the receiver trouble, or the results which will be obtained by following the suggested repair routine. All contributions become the property of Howard W. Sams & Co., Inc.

★ ★

ARVIN 444A

Photofact 461-3, Set 1

"Complaint: A high-pitched whistle, which sounded like a microphonic tube.

"Examination showed that the speaker rested against the gang condenser. It had been insulated with a piece of white tape by the factory, but this provided insufficient cushioning. Forcing a small wad of absorbent cotton between the speaker frame and the end of the gang condenser cleared up the trouble."

Submitted by: Mr. Max Raffer, Raffer's Repair Service, 1252 Bedford Avenue, Brooklyn, New York

★ ★

PHILCO 46-350 PORTABLE

Photofact 4610-24, Set 10

"Complaint: Distortion and poor sensitivity.

"Check the 3.3 meg. 1st a.f. screen grid resistor for open. This is item No. 34 on schematic.

"I have found this trouble in several of these models."

RCA 54B1 PORTABLE

Photofact 467-22, Set 7

"Complaint: Intermittent reception.

"Pressing on battery holder causes the set to cut off and on. This trouble is caused by a broken ground lead from the oscillator coil to ground. This lead gets down between battery holder and chassis, and is worn by the battery holder clamp. Resolder this wire to chassis."

Submitted by: Mr. Stanley Caldwell, Radio & Appliance Repairing, Natural Bridge, New York

★ ★

EMERSON 522

Photofact 468-10, Set 8

"I had a very unusual experience with an Emerson 522 some time ago. The set would light but would not play.

"The trouble was found in a 12AT6 tube with a too low heater resistance; so that the voltage was low on this tube and a bit high on the others."

Submitted by: Mr. George H. Williams, Williams Radio & Electric Co., 604 Clay Street, Marietta, Georgia

★ ★

MOTOROLA 65F11, 65F12

Photofact 466-19, Set 6

"Motorola Model 65F12 phono-combination. Brand new . . . had a loud hum suspiciously like filter condenser trouble. I found the transformer mounted with self-tapping screws, and screws had stripped hole threads in chassis allowing the transformer to loosen slightly. The 7B5 a.f. tube amplified this vibration.

"Remedy: Replace screws with 6/32 bolts and nuts."

★

CROSLEY 56TZ

Photofact Pending

"A Crosley Model 56TZ table combination had a noise that was similar to a loose connection, and was particularly bothersome when tuning. It was found that the metal housing covering tuning controls was making an intermittent connection with the mounting lugs on the chassis. Insulate with Scotch Tape or the like and the noise will disappear. A grounding wire from housing to chassis would not cure noise!"

★

1A7 CONVERTER TUBES

"Here is a valuable added use for an isolation transformer if a variable line voltage control is included. Sets using the 1A7 tube seem to be critical for cutting out at reduced line voltages. Owners in areas with heavy line loads are particularly troubled. Merely check set on isolation transformer to find where oscillator section of 1A7 cuts out. If too low, replace with new tube that has lower cutout voltage. Tube checkers fail to show up this problem."

Submitted by: Mr. Guy B. Welsh, 600 Lincoln Street, Taft, California

★ ★

RCA 66X1

Photofact 467-23, Set 7

"The multiple padder assembly in the output i.f. transformer (Item 45) had become leaky (in the neighborhood of 70,000 ohms) bleeding B voltage into the a.v.c. network. Intermittent operation of the set was the only symptom. Replace complete unit."

Submitted by: Mr. Earl Young, Young's Radio, 433 Needham Avenue, Kent, Ohio

PUBLICATION DATES

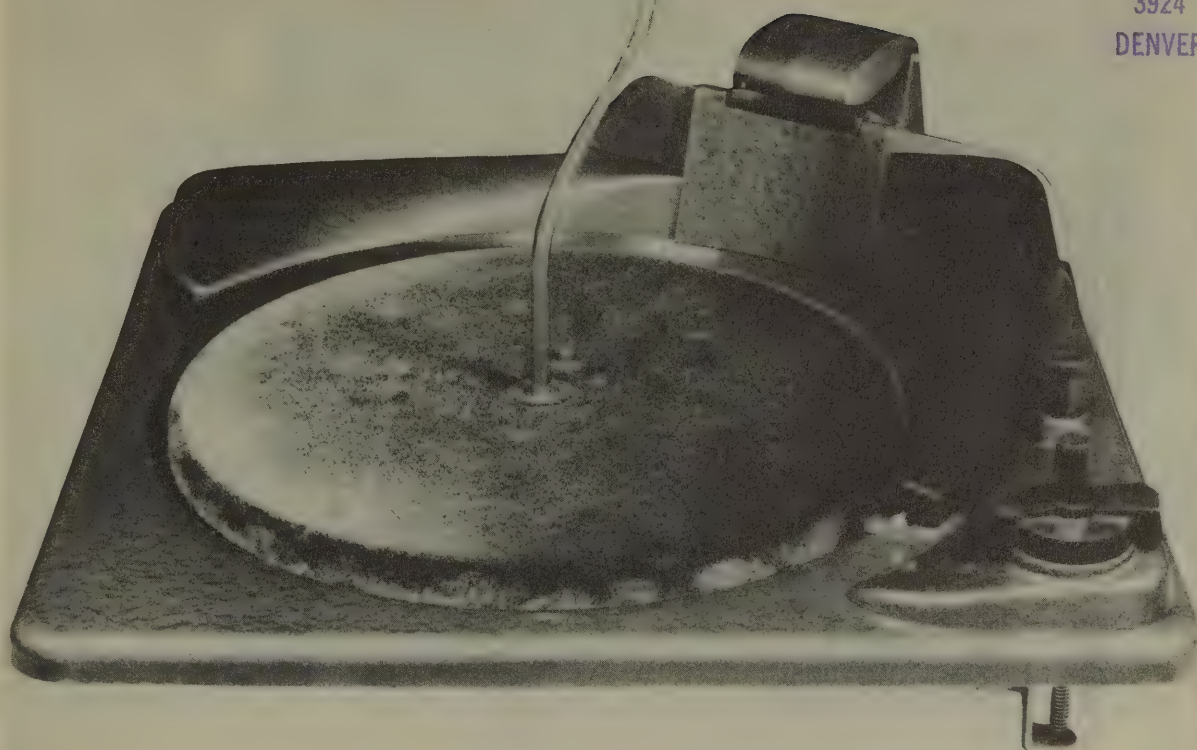
When will other sets of PHOTOFACT Folders be published?

Volume 3—Set No. 30	December 15
Volume 4—Set No. 31	January 15
Volume 4—Set No. 32	January 15
Volume 4—Set No. 33	February 15

If you have been unable to get any issues of PHOTOFACT Folder Sets, send your order and money directly to us and we will see that you are supplied.

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L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

WEBSTER
MODEL 70



TOP VIEW

WEBSTER
MODEL 70

Page One

GENERAL INFORMATION

This changer is designed to play up to ten 12-inch, twelve 10-inch, or an intermixed stack of 10- and 12-inch records not exceeding $1\frac{1}{8}$ inches in total thickness. No setting for record size is necessary and the changer is automatically turned off after the last record is played. The idler wheel is automatically retracted when the changer is not operating.

Manufactured by WEBSTER-CHICAGO, 5610 Bloomingdale Ave., Chicago 39, Illinois

TO REPLACE NEEDLE

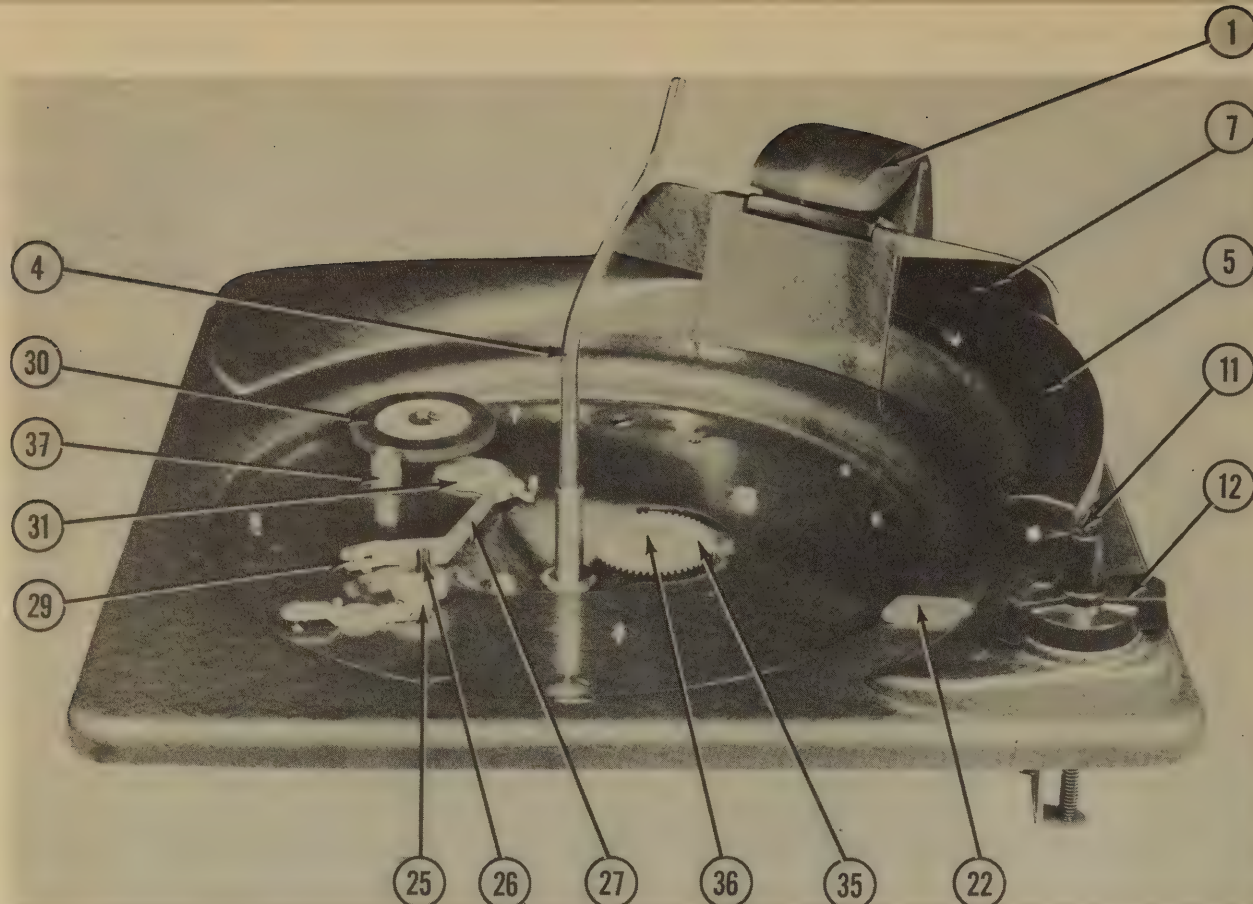
The crystal pickup cartridge supplied with this changer is the Astatic Nylon 1-J. An ejector screw hole is provided in the cartridge housing immediately above the needle. Any type screw with a No. 2-64 thread may be used to eject the needle. The new needle is then inserted in the tapered groove of the chuck, pushing carefully until the needle pin locks in place.

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DATE 12/47 SET #29 FOLDER 4719 - 28



TOP VIEW LESS TURNTABLE

THE CHANGE CYCLE

The change cycle is started by a velocity trip mechanism. When the movement of the pickup arm toward the record spindle is greater than $\frac{1}{8}$ inch in $\frac{1}{2}$ revolution of the turntable the mechanism is actuated.

As the pickup arm moves toward the center of the record, it moves the automatic trip lever (61) with it, the lever being connected through a spring-loaded clutch to the pickup arm pivot shaft (21).

The trip lever (61) gradually approaches the velocity trip lever (60) and, upon contact, carries it with it. However, the main cam actuating gear (45) has four equally spaced projections on its circumference which strike the velocity trip lever roller (62), as the gear revolves, and force the automatic trip lever (61) and the velocity trip lever (60) back away from the tripping point. This does not affect the pickup arm because of the friction clutch. When the needle enters the eccentric groove upon completion of the record, the automatic trip lever moves at such a speed that it carries the velocity trip lever to the tripping point between projections on the main gear.

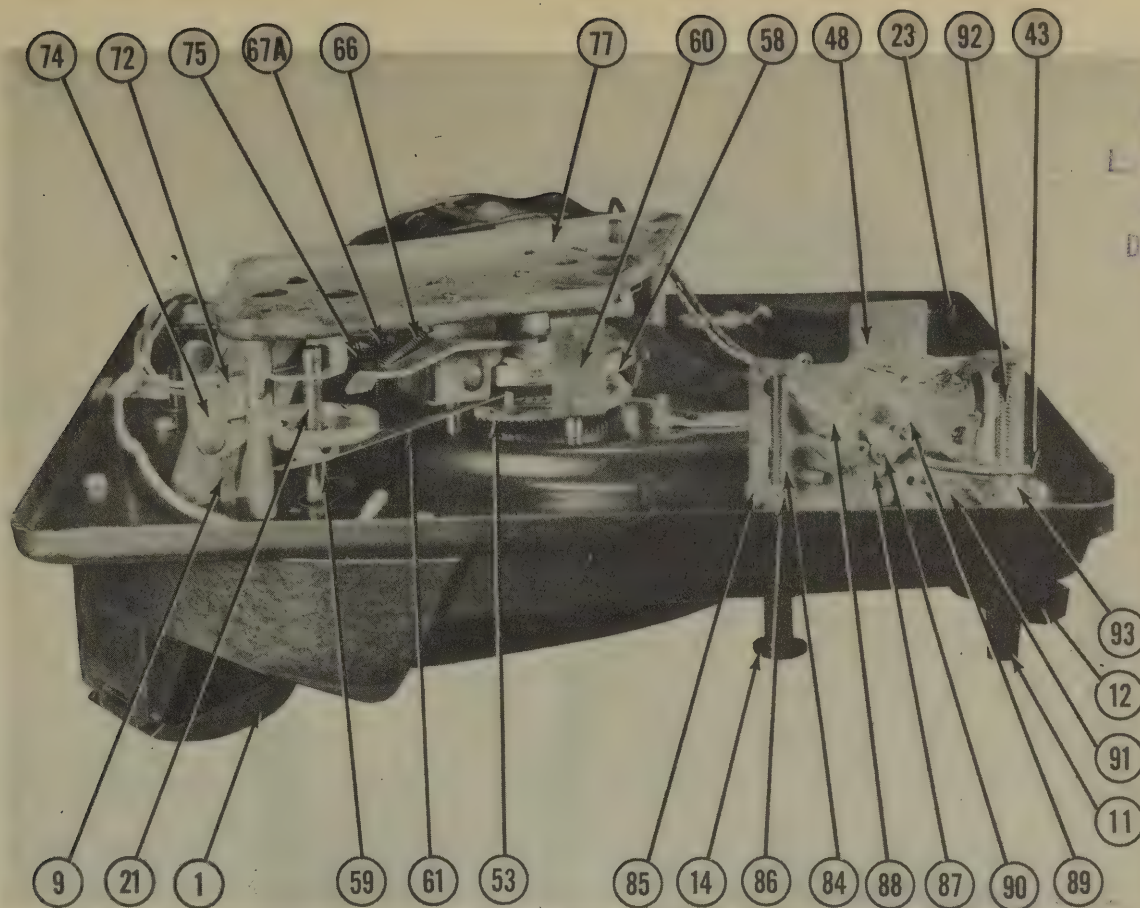
The velocity trip lever (60), when in position between cycles, holds the actuating pawl (57) on the

upper surface of the main cam (58) away from the track on the lower surface of the main actuating gear (53). When tripped, the velocity trip lever no longer holds the pawl, but allows it to engage the gear and causes the cam to rotate with the gear.

The main cam has two cam surfaces on its lower side. The inside cam surface forms a track in which the stud of the pickup arm raising lever (65) rides. The outer cam surface actuates the rocker arm assembly (67) by means of the rocker arm roller (68).

As it is rotated by the cam, the pickup arm raising lever (65) pushes up on the pickup arm raising disc (63). The stud of the raising arm is now moved toward the center of the cam, moving the pickup out clear of the record stack. As the cam continues to rotate, the roller (68) of the rocker arm moves down the incline moving the record selector shelf assembly (9) toward the spindle to drop a record.

The stud on the raising lever now moves back away from the center of the cam, moving the pickup to the set-down position. This position is determined by the position of the raising arm (65) stud in its cam groove. When a 10-inch record rests on the record shelf, in position to be the next record



REAR VIEW BOTTOM

dropped, the record selector lever (9A) hangs in its normal position. This allows its lower end to engage the index selector assembly (74). Then, when the rocker arm assembly (67) moves to drop a record, the index assembly (74) forces the raising arm stud to the side of its cam groove nearest the center of the cam. When a 12-inch record is on the record shelf in position to drop, the record selector lever (9A) is placed out of position so that it does not engage the index assembly. This allows the raising lever stud to remain at the outer side of its cam groove.

The stud now moves up an incline, allowing the pickup to come down on the record. At the same time, the roller on the rocker arm moves back up its incline, allowing the record shelf assembly (9) to move back to its normal position.

During the rotation of the cam, the velocity trip lever has been reset by the projections on the main gear. Therefore, when the cam has completed one revolution the hook on the velocity trip lever catches the pawl and disengages the main cam from the actuating gear, completing the cycle.

If no record is resting on the spindle step at the beginning of a change cycle, the automatic shut-off lock (69) will engage the pickup raising disc and prevent the pickup from moving in to the set-down position. It, therefore, sets down on the "off" button, shutting the changer off.

ADJUSTMENTS

Pickup Arm Height:

The needle should clear the top record of a full stack by approximately $\frac{1}{8}$ inch. Adjustment may be made by bending the pickup raising lever (65) at the bend just below the point of contact with the pickup raising disc. Do not attempt to adjust by moving the raising disc.

Set-Down Adjustment:

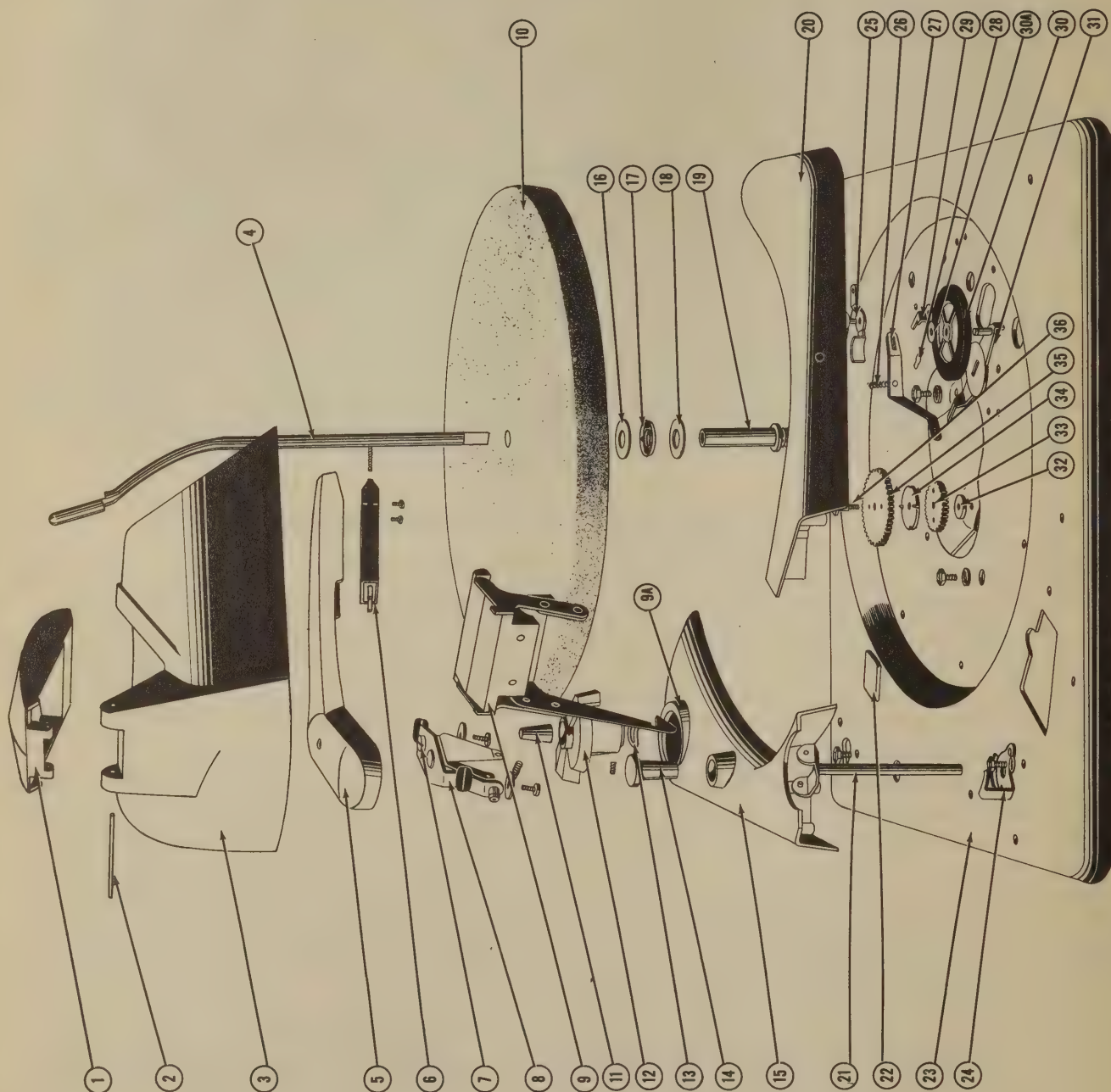
Normally, the set-down point may be adjusted by turning the eccentric pin (7) in the hinge (8). This pin may be turned with a screwdriver through a hole in the top of the pickup arm. If this pin does not move the arm far enough, loosen the set screws in the pickup arm raising disc (63) and turn the disc until the adjustment is correct.

Automatic Trip Friction Clutch:

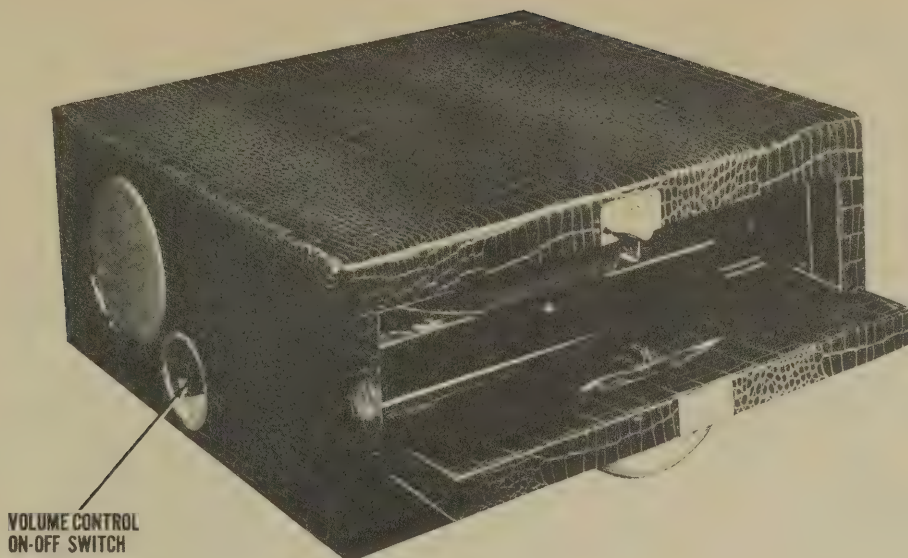
The spring clip (50), which adjusts the tension of the clutch spring, should be at least $\frac{1}{4}$ inch below the main base plate. A collar held by a set screw is frequently used instead of this clip. The spring tension should be just enough to operate the trip mechanism. Too much tension will cause undue drag on the pickup arm. No oil or grease should be used on this clutch.

Velocity Trip and Roller Assembly:

The hook which disengages the main cam actuating



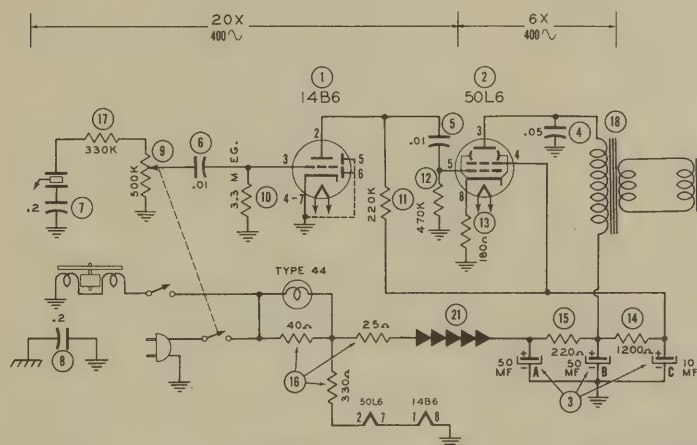
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VOLUME CONTROL
ON-OFF SWITCH

PHILCO MODEL 48-1200

TRADE NAME Philco, Model 48-1200
MANUFACTURER Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET AC Operated Record Player with Two Tube Amp. and Speaker
TUBES (TWO) Types, 14B6 AF Amp., 50L6GT Power Output
POWER SUPPLY 110-120 Volts AC RATING .240 Amps. @ 117 Volts AC



DISASSEMBLY INSTRUCTIONS

1. Remove one push-on type control knob.
2. Remove four hex head screws holding record player in cabinet.
3. To open the panel on back of cabinet turn the two copper colored screws a half turn.
4. Remove pilot lamp from clamp in cabinet.
5. Slide the record player out rear of cabinet.
6. Unsolder leads from chassis to player.
7. Remove three hex nuts holding chassis to player. Remove chassis from player.
8. Unsolder green lead from speaker.
9. Remove two screws holding speaker. Remove speaker from player.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14B6	14VAC	73VDC	-.6VDC	OV.	OV.	OV.	OV.	OV.
2	50L6GT	OV.	62VAC	108VDC	116VDC	OV.	OV.	14VAC	8.7VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14B6	14Ω	240KΩ	3.3 Meg.	0Ω	0Ω	0Ω	0Ω	0Ω
2	50L6GT	1NΩ.	65Ω	22KΩ	22KΩ	470KΩ	0Ω	14Ω	180Ω

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4719-20

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			RMA BASE TYPE	INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT			
1	AF Amp.	14B6	50L6GT	8W	7AC	
2	Power Output	50L6GT	50L6GT			

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		PHILCO PART No.	MALLOY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
3A	CAP.	30-2568-16		UY-2x50-150	EL-25	AF10100	UP5515
B	50			UY-10-150	UT-121	FRS-150-12	BRL215
4	10			S-4-05	TC-15	484-05	DT4S5
5	.05	61-0122	TP426	S-4-01	TC-11	484-01	DT4S1
6	.01	61-0120	TP421	S-4-01	TC-11	484-01	DT4S1
7	.01	61-0120	TP421	S-4-01	TC-2	484-.2	DT4P2
8	.2	45-3500-3	TP429	S-4-2	TC-2	484-.2	DT4P2
9	400	45-3500-3	TP429	S-4-2	TC-2	484-.2	DT4P2

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PHILCO PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
9A	RESISTANCE	33-5638-20	MR46	D13-133	M-60-Z	Volume Control
B	Switch	Not Req.	M26	A	Not Req.	Attach to 9A per instructions
C	Switch	Not Req.	M26	41	SW-A	"

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		PHILCO PART No.	IRC PART No.	
10	3-3 Meg.	66-5333340	BTS-3.3 Meg.	Or.-Or.-Grn. AF Grid
11	220K	66-4223340	BTS-220K	Red-Red-Yl. AF Plate Load
12	470K	66-4473340	BTS-470K	Yl.-Yl.-Yl. Output Grid
13	180	66-1183340	BW-180	Br.-Gray-Br. Output Cathode
14	1200	66-2123340	BTS-1200	Br.-Red-Red Filter
15	220	66-1224340	BW-1-220	Red-Red-Br.
16A	40		BW-2-39	Pilot Light Shunt
B	330			Line Dropping
C	25		BW-1-27	Rectifier Ballast
17	330K		BTS-330K	Or.-Or.-Yl. Series Photo-See Note

Note-Some models use 1 Meg. in this application. IRC replacement BTS-1 Meg.

Note-Some models use 1 Meg. in this application. IRC replacement BTS-1 Meg.

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PHILCO PART No.	STANCOR PART No.	THORDARN PART No.	MERIT PART No.	
18	IMPEDANCE PRI SEC 2450Ω 3-4Ω 240Ω .5Ω	32-8310-3	A-3876	T22845	A-2928	

SPEAKER

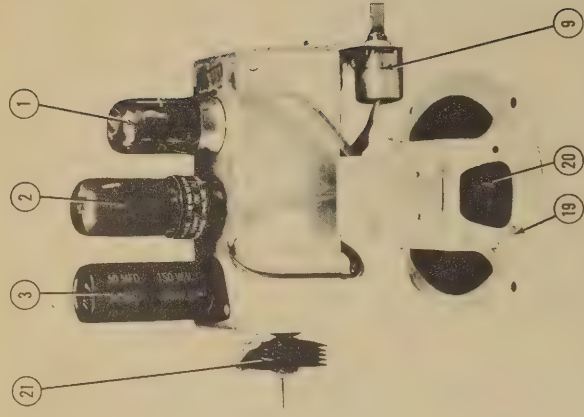
ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		PHILCO PART No.	JENSEN PART No.	
19	FIELD VC IMP. 3.4Ω	36-1625	ST-105*	*Drill and tap magnet frame.
20	CONG DIA. VC DIA. 1/2"		Mod. FS-X	

NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT

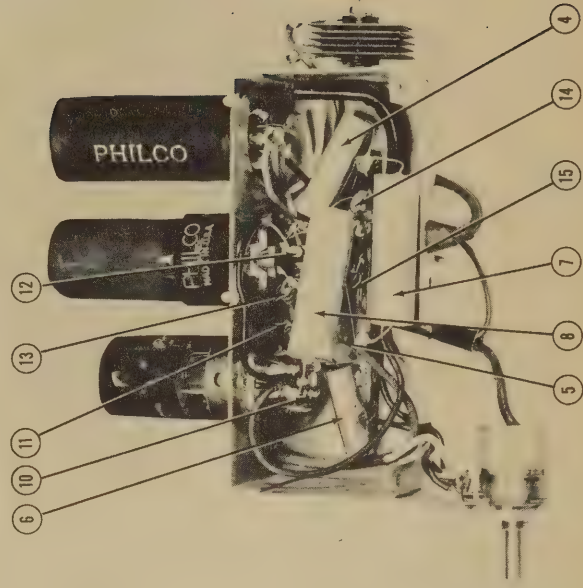
MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
21	Rectifier	CR100	Selenium

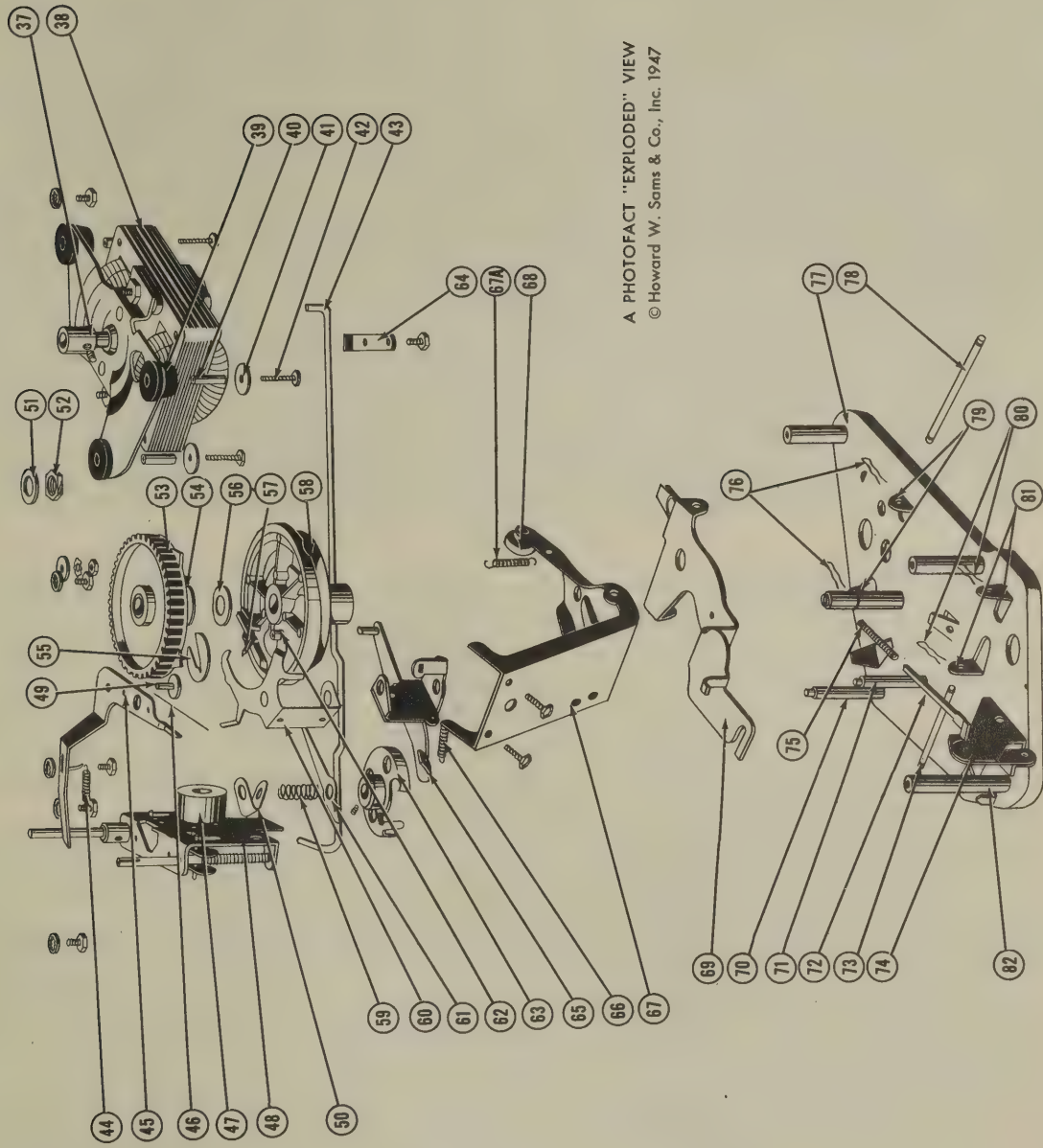
CHASSIS—TOP VIEW



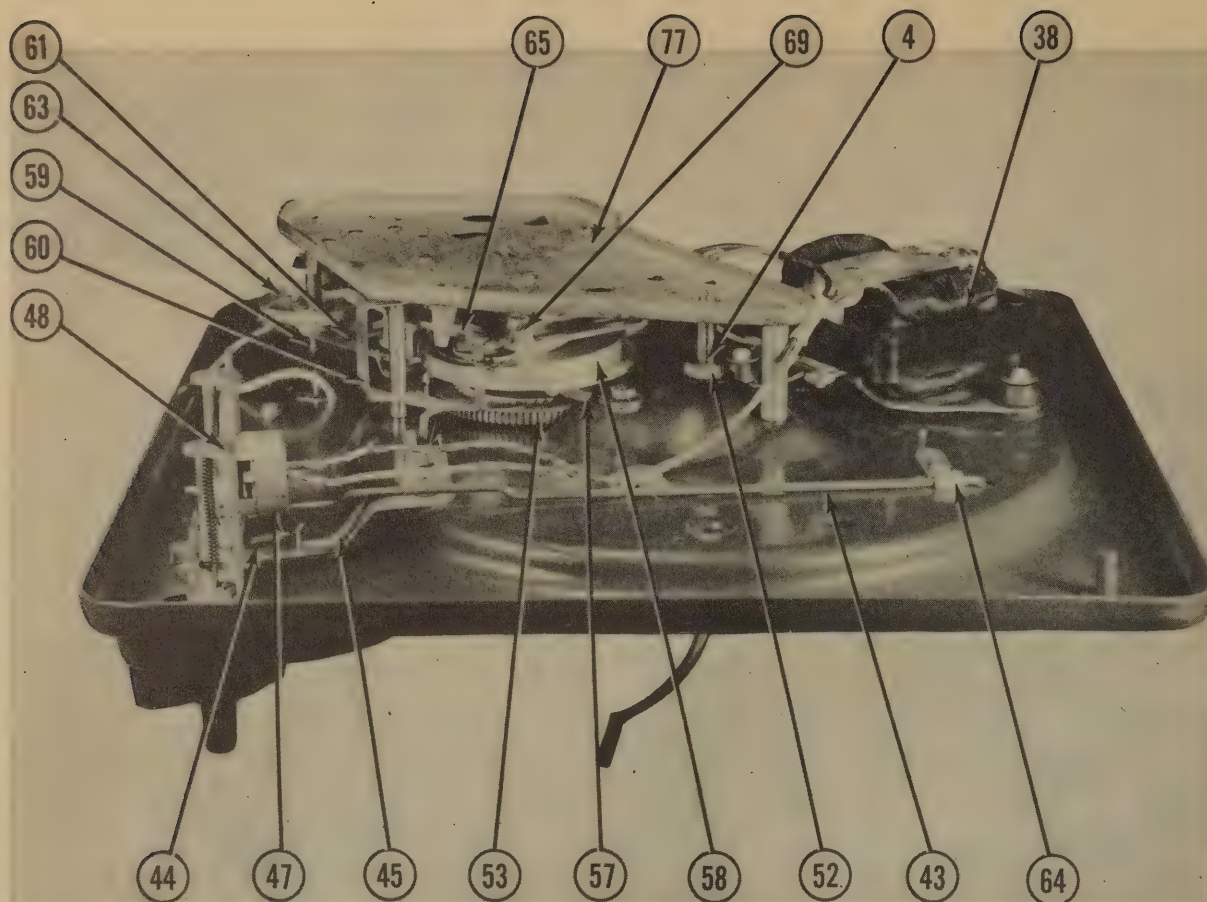
CHASSIS—BOTTOM VIEW



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



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SIDE VIEW BOTTOM

pawl (57) from the actuating gear should be adjusted for a clearance of from five to fifteen mils below the actuating gear. Too much clearance may allow the pawl to bounce and re-engage.

Automatic Shut-Off Lock:

With no records on the turntable, check the automatic shut-off lock lever (69) for proper height. With the changer in playing position, the hook should clear the top of the pickup raising disc by about $1/32$ inch. Bend the hook, if necessary, to make this adjustment. When the adjustment is correct, the hook will catch the raising disc at the beginning of the cycle and prevent its lateral movement. With records on the spindle, the hook is moved up high enough to clear the raising disc throughout the entire change cycle.

When the arm is in the "Off" position, the lip of the raising disc (63) rests in the groove between the stud post and bracket. If the arm does not rest properly on the "Off" button, its position may be corrected by bending the lip of the raising disc. After making this adjustment, check the set-down on a 12-inch record to be certain the lip of the disc does not strike the bracket.

Record Selector Shelf:

At the beginning of the change cycle, the record selector shelf (9) moves about $3/32$ inches toward the spindle. The purpose of this movement is to lock the automatic shut-off lever (69) so it will not interfere

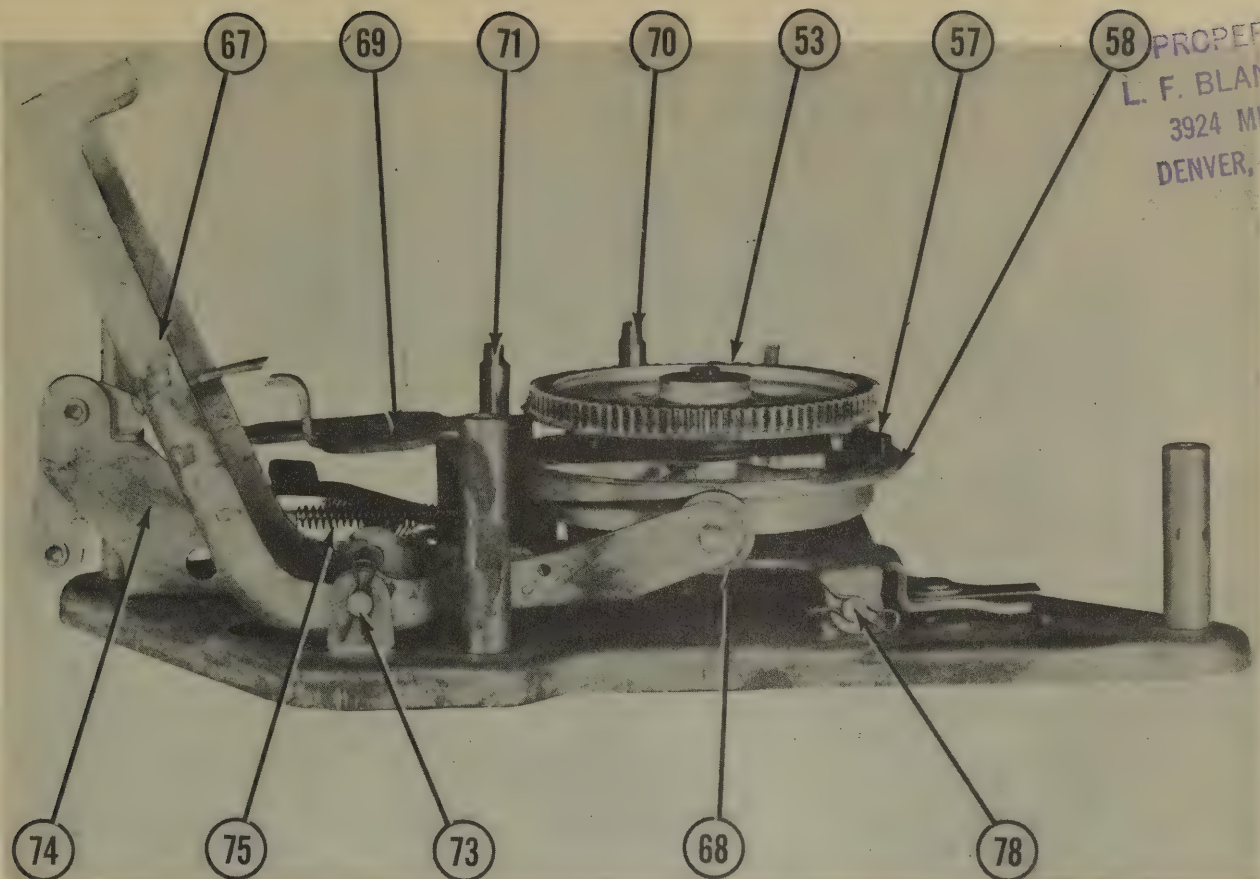
with the set-down on the last record. The movement should not be enough to drop a record. If a record does drop during this movement, it will fall on the pickup arm. Early dropping will usually be caused by the selector shelf resting too far from the record spindle. This allows the record to catch on the edge of the selector shelf, instead of sliding on the ledge, and the initial movement will drop a record.

If the distance between the spindle and record shelf is too small, records may rest over the tips of the push-off fingers or be forced against the spindle.

A standard 10-inch record should rest on the shelf with approximately $5/32$ inches distance between the edge of the record and the front push-off fingers. With a full stack of records this distance will be reduced to about $1/8$ " by the added weight on the spindle. Do not attempt to adjust by bending the spindle. Adjustment is to be made by removing the center trim escutcheon (3) and bending the rocker arm (67). For forward adjustment (to reduce distance), wedge a screwdriver between the rocker arm and the subplate (77) in front of the rocker arm pivot and bend the rocker arm toward the spindle with the heel of the hand.

For backward adjustment (to increase distance), wedge a screwdriver between the rocker arm and the subplate (77) back of the rocker arm pivot. Pull back on the selector post.

If adjustment is made, be certain that both push-off fingers are equi-distant from the edge of the record.



SIDE VIEW OF SUB PLATE ASSEMBLY

LUBRICATION

Lubrication should be sufficient for about a year of normal operation. When lubricating, be very careful not to allow oil or grease to come in contact with any rubber surfaces or the automatic trip clutch. If any oil gets on any of these surfaces, it should be removed immediately with carbon tetrachloride.

1. Use No. 10 oil at the following points:

- Saturate felts on motor bearings.
- One drop each—bottom bearing point, hole in bracket, and hole in main base plate for pickup arm shaft.
- Ball bearing assembly (17).
- Idler wheel felt (30A).

2. Use Lubriplate at the following points:

- Idler wheel linkage.
- Turntable shaft stud (19).
- Pickup arm hinge pins (part of 21).
- Knife edge of raising lever (65).
- Main cam bearing. Remove sub-plate assembly to gain access to this bearing.

3. Apply Sta-Put to the following surfaces:

- Teeth of main cam actuating gear (53).
- Track of main cam (58).
- Teeth of fibre gears (33, 35).
- Raising lever bracket bearing surfaces (65).

TROUBLES

1. Failure to Trip:

- Insufficient tension on clutch spring (59).
- Binding in velocity trip and roller assembly (60).
- Cam pawl binding.
- Automatic trip arm (61) bent.
- Manual trip lever assembly (45) binding.
- No eccentric groove on record.

2. Failure of Manual Trip:

- Actuating spring (46) broken.
- Cam pawl (57) binding.
- Velocity trip and roller assembly (60) binding.

3. Continuous Tripping:

- Too much clearance on hook of velocity trip lever (60).
- Hook bent and not engaging pawl (57).
- Roller (62) on velocity trip lever broken.
- Manual trip lever (45) binding.

4. Fails to Shut Off After Last Record:

- Spindle binding.
- Hook on automatic shut-off lever (69) fails to engage raising disc (63).

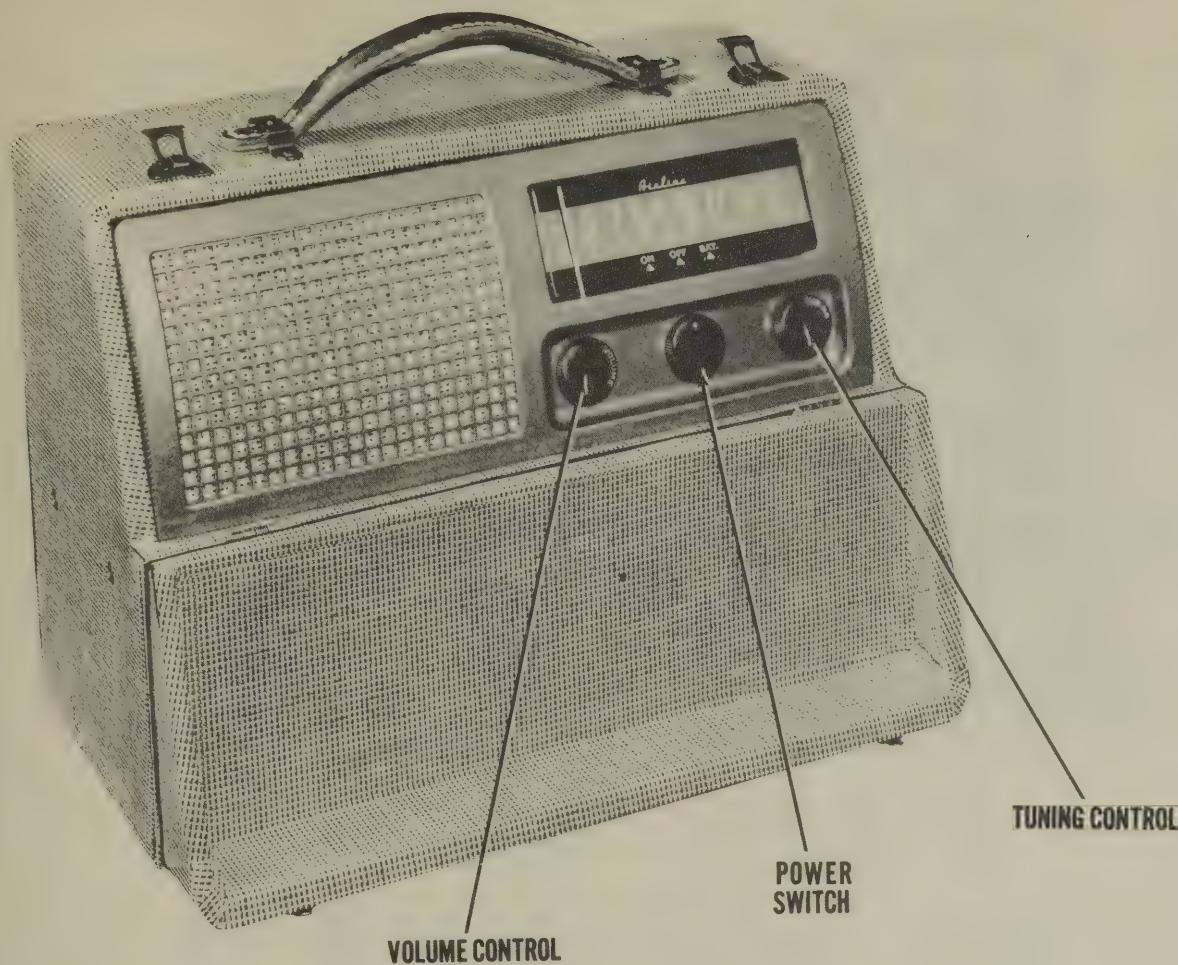
5. Motor Fails to Shut Off:

- "Off" button stuck.
- Defective switch mechanism (48).
- Defective switch (83).

The manufacturer recommends that either the switch or switch mechanism be replaced as a unit and that repair not be attempted.

PARTS LIST

Ref. No.	Part No.	DESCRIPTION	Ref. No.	Part No.	DESCRIPTION
1	42P159	Record clip	47	32P033	AC switch cover
2	27P074	Record clip pin	48	11X134	Switch assembly
3	11G169	Center trim escutcheon	49	27P102	Trip lever shoulder rivet
4	42P163	Record spindle	50		Clutch spring tension clip
5	49X041	Pickup arm	51		Turntable stud lockwasher
6		Crystal pickup cartridge	52	26P687	Turntable stud nut
7	(Part of 8)	Pickup arm set-down adjusting pin	53	11X032	Main cam actuating gear
8	21X251	Pickup arm mounting hinge assembly	54		Cam spacing thrust washer
9	49P044	Record selector and shelf assembly	55	25P342	Cam spacing "C" washer
9A	(Part of 9)	Record selector lever	56		Cam spacing thrust washer
10	11X138-1C	Turntable	57	(Part of 58)	Main cam actuating pawl
11	49P026	"On" button	58	11X033	Main cam assembly
12	49P040	Manual control knob	59	46P127	Clutch tension spring
13	25P182	Manual control knob spring washer	60	11X047	Velocity trip lever
14	49P025	"Off" button	61	45P345	Automatic trip lever
15		Control escutcheon	62	(Part of 60)	Velocity trip roller
16	25P269	Bearing race washer	63	11X031	Pickup arm raising disc assembly
17	11X058	Bearing retainer assembly	64	45P452	Idle release rod bracket
18	25P269	Bearing race washer	65	11X097	Pickup arm raising lever and bracket
19	41P414	Turntable shaft stud	66	46P044	Raising lever tension spring
20		Left trim escutcheon	67	11X096	Rocker arm assembly
21	11X136	Pickup arm pivot shaft	67A	46P122	Rocker arm return spring
22		Needle pad	68	(Part of 67)	Rocker arm roller
23		Main base plate	69	11X079	Automatic shut-off lock lever
24		Pickup arm lift stop bracket	70	(Part of 77)	Velocity trip lever stud
25	45P447	Idle release lever	71	(Part of 77)	Raising lever bracket stud
26	(Part of 27)	Connecting link spring	72	(Part of 74)	Index selector arm
27	11X152	Connecting link	73	41P421	Rocker arm pivot pin
28	50P125	Idle retaining clip	74	11X104	Index selector assembly
29	45P453	Connecting link bracket	75	46P011	Index compression spring
30	11X003	Idle wheel	76		Shut-off lock pivot pin retaining clip
30A		Idle wheel felt	77		Sub-plate assembly
31	11X075	Idle mounting link	78	41P443	Shut-off lock pivot pin
32		Idle gear spacing washer	79	(Part of 77)	Shut-off lock mounting ears
33	47P023	Small idler gear	80		Rocker arm pivot pin retaining clip
34	45P342	Idle gear coupling	81	(Part of 77)	Rocker arm pivot mounting ears
35	47P023	Large idler gear	82	(Part of 77)	Pickup arm shaft bracket
36	41P333	Idle gear mounting screw	83	32P002	AC power switch
37	17X412-1	Drive sleeve 60 cycle	84	(Part of 48)	"Off" button return spring
	17X412-4	Drive sleeve 50 cycle	85	(Part of 48)	"Off" button latch trip pawl
38	15X084	50-60 cycle 117-volt motor	86	(Part of 48)	"Off" button latch trip pawl pin
39	25P281	Motor mounting grommet	87	(Part of 48)	"On" button actuating lever latch
40	41P530	Motor mounting spacer	88	(Part of 48)	"On" button actuating lever latch spring
41		Motor mounting washer	89	(Part of 48)	"On" button actuating lever
42	26P241	Motor mounting screw	90	(Part of 48)	"On" button actuating lever roller
43	459440	Idle release rod	91	(Part of 48)	Manual trip locking lever
44	46P017	Manual trip tension spring	92	(Part of 48)	"On" button return spring
45	11X063	Manual trip lever assembly	93	(Part of 48)	"On" button coupling pin
46	(Part of 45)	Manual trip actuating spring			



AIRLINE MODEL 74WG-1056A

TRADE NAME	Airline, Model 74WG-1056A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET	Three Power Portable Superheterodyne with Loop Antenna
TUBES (FIVE)	Types, 1R5 Converter, 1U4 1st IF Amp., 1U4 2nd IF Amp., 1S5 Det.-AVC-AF, 3V4 Power Output.
POWER SUPPLY	117 Volts AC-DC or 9 Volt "A" Supply and 90 Volt "B" Supply in Pack Form
RATING	.140 Amp. @ 117 Volts AC or 47MA @ 9V DC and 15MA @ 90V DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to Pin 6 (grid) 1U4 1st IF Tube (2). Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200MMF to reduce hum modulation.
2 .1 MFD.	High side to Pin 6 (grid) 1R5. Low side to B-.	"	"	"	A3,A4.	Adjust for maximum output.
3 .1 MFD.	"	1620KC	"	"	A5	Adjust for maximum output. Install receiver in cabinet.
4 50MMF.	High side to ext. ant. clip. Low side to ext. ground clip.	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output. Set pointer to 1400KC reference mark.

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DATE 12/47 SET #29 FOLDER #4719-1

PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

AIRLINE MODEL 744C-10564
BATTERY OPERATED

CHASSIS--TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIRLINE PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AT	
2	Set Pt. Amp.	1U4	1U4	6AR	
3	Grid Amp.	1U4	1U4	6AU	
4	Det.-AVC	1R5	1R5	6AU	
5	Power Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES AND INSTALLATION NOTES
		AIRLINE PART No.	MALLORY PART No.	SOLAR PART No.	
6A	CAP. 80	45X356		AF886D4A	Filter
B	30				
C	100				
D	25				
7	.05	D66503	TP426	MPH-4-05	BR502
8	.05	D66503	TP426	S-4-05	484-05
9	.05	D66503	TP426	S-4-05	484-05
10	.05	D66503	TP426	S-4-05	484-05
11	.05	D66503	TP426	S-4-05	484-05
12	.005	D66502	TP408	S-6-005	484-005
13	.005	D66502	TP408	S-6-005	484-005
14	.05	D66502	TP408	S-4-05	484-05
15	.05	D66502	TP408	S-4-05	484-05
16	.05	D66502	TP408	S-4-05	484-05
17	.05	D66502	TP408	S-4-05	484-05
18	.05	D66502	TP408	S-4-05	484-05
19	.04	47X476	TP426	S-6-04	484-04
20	100		YC255	YO.5-31	1468-0001
21A	50		YC255	YO.5-31	1468-0005
B	50		YC255	YO.5-31	1468-0005
22	100		YC255	YO.5-31	1468-0001

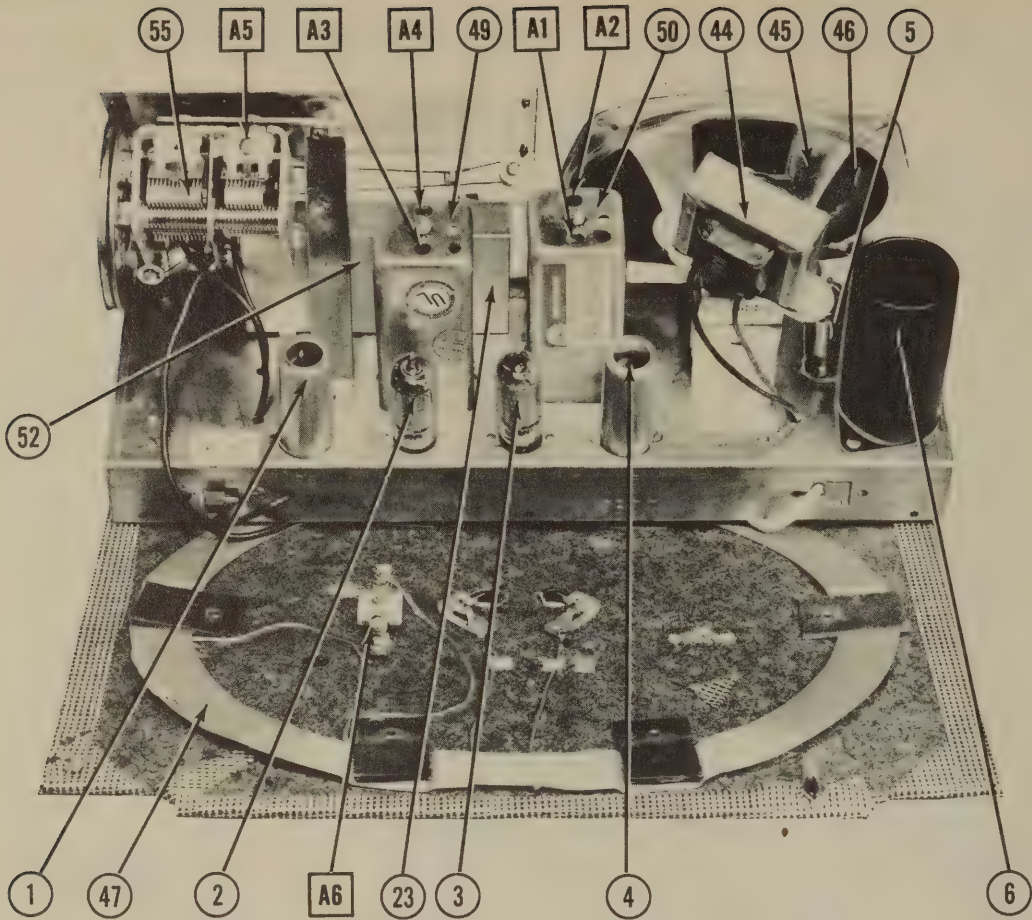
†Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		AIRLINE PART No.	MALLORY PART No.	IRC PART No.	
23A	500KZ	35X370	Mk401	DI3-133	Volume Control
B	Shaft	Not Req.	Not Req.	E	Attach to 23A per Instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		AIRLINE PART No.	IRC PART No.	
24	100KZ	B84104	BTS-100K	Br.-Blk.-Yl. Oscillator
25	15KZ	B84158	BTS-15K	Br.-Grn.-Or. Decoupling
26	1500Z	B84182	BTS-1500	Br.-Grn.-Red "
27	2.2KZ	B85225	BTS-2.2K Meg.	Red-Red-Grn. AVC Network
28	2.2KZ	B84182	BTS-2.2K Meg.	Br.-Red-Or. IF Plate Load
29	3.3KZ	B85336	BTS-3.3K Meg.	Or.-Or.-Grn. IF Grid
30	47KZ	B85475	BTS-47K	Yl.-Vi.-Or. Diode Rf Filter
31	4.7KZ	B85475	BTS-4.7K	Yl.-Vi.-Grn. Af Grid
32	4.7KZ	B84106	BTS-4.7K	Yl.-Vi.-Grn. Af Screen Dropping
33	1KZ	B85336	BTS-1K	Br.-Blk.-Grn. Af Plate Load
34	3.3KZ	B84182	BTS-3.3K Meg.	Or.-Or.-Grn. Output Grid
35	1500Z	43X223	BTS-1500	Br.-Grn.-Red Filter
36	82Z	43X223		Rectifier Ballast
37	2000Z	43X221	AB-2000	Filament Dropping
38	330Z	B84331	BW-330	" "
39	1000Z	B84102	BTS-1000	Or.-Blk.-Red "
40	390Z	B84331	BW-390	Or.-White-Br. "
41	270Z	B84271	BW-270	Red-Vi.-Br. "
42	180Z	B84181	BW-180	Br.-Gray-Br. "
43	33Z	B85330	BW-33	Or.-Or.-Blk. Battery Saver



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.		AIRLINE	STANCOR	MERIT	
	PRI. SEC.	PRI. SEC.		Part No.	Part No.	Part No.	
44	1000Ω	5.4Ω	850Ω	124443	A-3823	A-2936	*Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA			INSTALLATION NOTES
		AIRLINE	JENSEN		
		Part No.	Part No.		
45	FIELD VC IMP.	124443	ST-1074		*Fabricate new mounting bracket.
	PM 3.4Ω		Mod. PS-V		
46	5" CONE DIA. VC DIA.				
	1/2"				
		NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

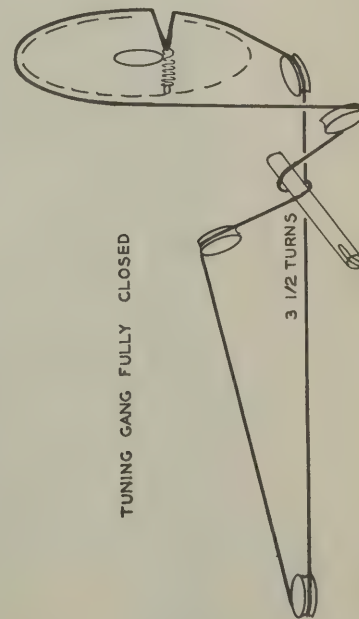
ITEM No.	USE	DC RES.			REPLACEMENT DATA	
		PRI.	SEC.	AIRLINE	MEISSNER PART No.	
						Part No.
47	Loop Ant.	2.50	150	9A1928		\$Add 50MFD from grid to high side tuning cap.
48	Osc. Coil	2.50	60	9A1927	14-1040\$	
49	Input IF	130	160	9A1840	16-6686	
50	Output IF	160	130	9A1841	16-6686	

BATTERIES

ITEM No.	VOLTAGE	EVEREADY			INSTALLATION NOTES
		AIRLINE	"A"	"B"	
		Part No.			
51	9V "A"	62-35		"A-B"	
	90V "B"			#754	

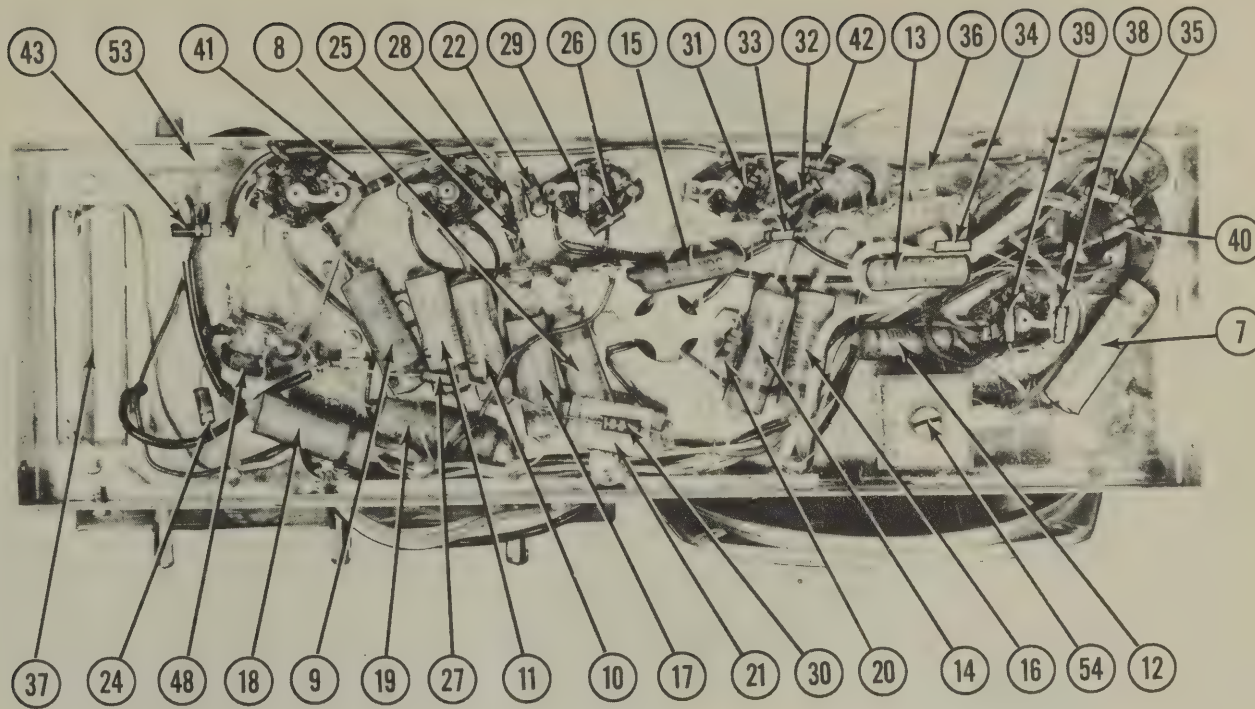
MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE	NOTES
52	Switch	2A371	AC-DC-On-Batt.
53		2A175	Battery Saver (SPST)
54	Rectifier	66X7	Selenium
55	2 Gang Var. Cap	14A186	(12-454 MUF, 28-193 MUF)
A6	Trimmer	17A123	Ant. Adj. (1.5-12MUF)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



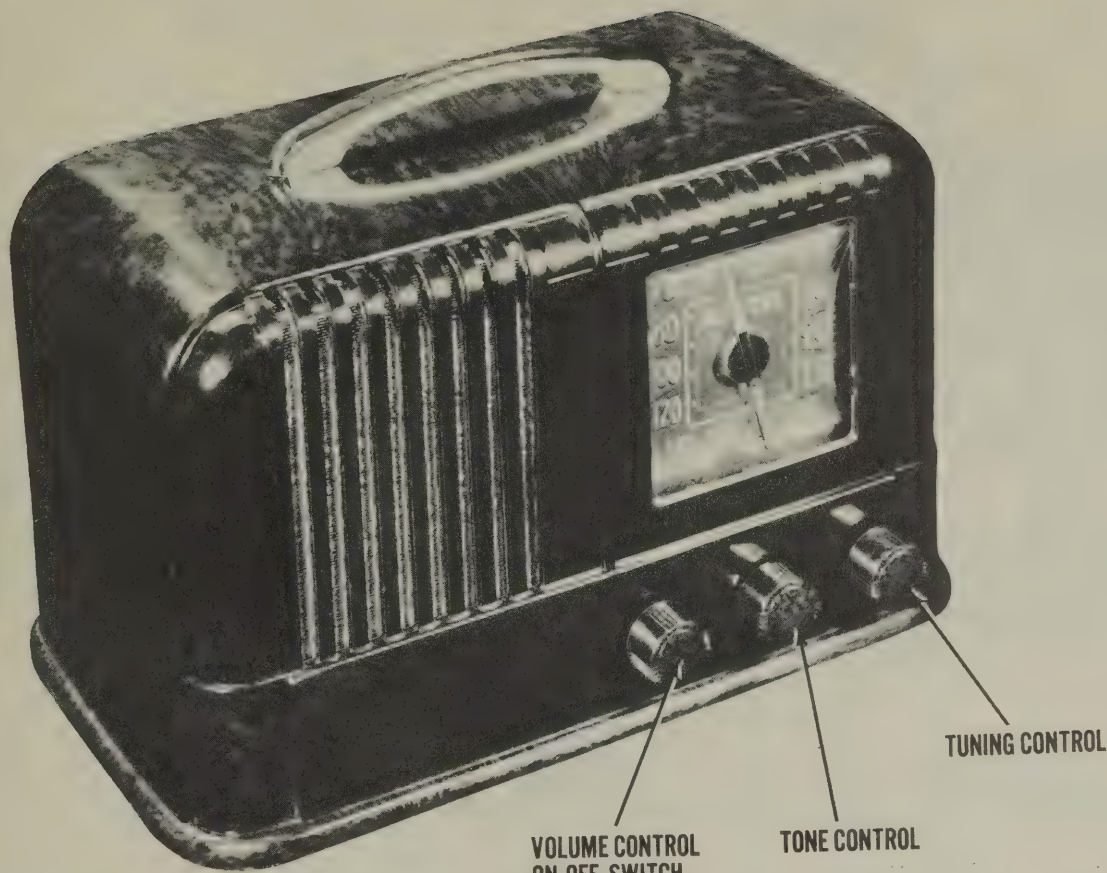


- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC
- 2 - Voltages measured at 1000 ohms per volt.
- 3 - Socket connections are shown as bottom views.
- 4 - Measured values are from socket pin to common negative.
- 5 - Line voltage maintained at 117 volts for voltage readings.
- 6 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 7 - Volume control at maximum, no signal applied for voltage measurements.

The stage gain measured values listed above are approximate values on an average operable state, rather than an absolute value. It is known that the stage gain is possible to introduce so many variables into the measurement system, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting to common negative during stage gain measurements.

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4719-1



ARVIN MODEL 664

TRADE NAME		Arvin, Models 664, 664A (Ch. RE-206-1), 6640 (Ch. RE-206-2)					
MANUFACTURER		Noblitt-Sparks Industries, Inc., Columbus, Ind.					
TYPE SET		AC-DC Operated Superheterodyne Receiver with Loop Antenna					
TUBES (SIX)		Types, 12SK7 RF Amp., 12SA7GT Converter, 12SK7 IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.					
POWER SUPPLY		105-125 Volts AC-DC		RATING		.250 Amp. @ 117V AC	
TUNING RANGE—BROADCAST		540-1600KC					
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
To set pointer turn tuning cap. fully closed and set pointer parallel with vertical side of dial. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS	
.1 MFD.	High side to center stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.	
	Loop	1400KC	1400KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.	
	"	"	Tune for maximum output.	"	A6,A7	Adjust for maximum output.	

ARVIN MODELS 664, 664A
(Ch. RE-206-1), 6640 (Ch. RE-206-2)

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DATE 12/47 SET #29 FOLDER #4719-2

PROPERTY OF
BLANKENSHIP
3824 MEADE ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ARVIN MODELS
604, 604A, 604D

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		ARVIN PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amplifier	12SK7	12SK7	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7	12SK7	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		ARVIN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	40 CAP.	A19239	FP-306	DY-40+20-150	EL-24	AF88D
8	20	150				
9	.05	400	C20068-503	TP426	TC-15	484-05
10A	.02	400	C20068-203	TP423	TC-12	484-02
10B	.1	400	C20068-104	TP428	TC-1	484-1
11	.03	400	C20068-303	TP428	TC-13	484-03
12	.005	600	C20068-502	TP409	TC-13	484-03
13	.01	400	C20068-103	TP421	TC-11	484-01
14	.05	400	C20068-503	TP426	TC-15	484-05
15	.01	400	C20068-104	TP428	TC-1	484-1
16A	.002	800	C20068-202	TP405	TC-11	484-01
16B	.1	200	C20067-104	TP428	TC-22	684-002
17	250	500	C20065-251	MC240	LM-325	1468-00025
18	100	500	C20065-101	MC235	LM-31	1468-00025
19	14	500	CA19182			
20	250	500	C20065-251	MC240	LM-325	1468-0001

*Used in early production.

†Used in later production.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		ARVIN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
21A	500KΩ	C19244	MK401	D13-133	AM-60-Z	Volume Control
21B	Shart	Not Req.	M26	41	KSS-3	Attach to 21A per instructions
22A	Switch	C19965	MK401	D13-133	AM-60-Z	Tone Control-plate production
22B	Shart	Not Req.	Not Req.	Not Req.	KSS-3	Attach to 22A per instructions
22A	20KΩ	C19279	UM124	D11-120	AM-40-S	Tone Control-early production
22B	Shart	Not Req.	SS25	E	KSS-3	Attach to 22A per instructions

RESISTORS

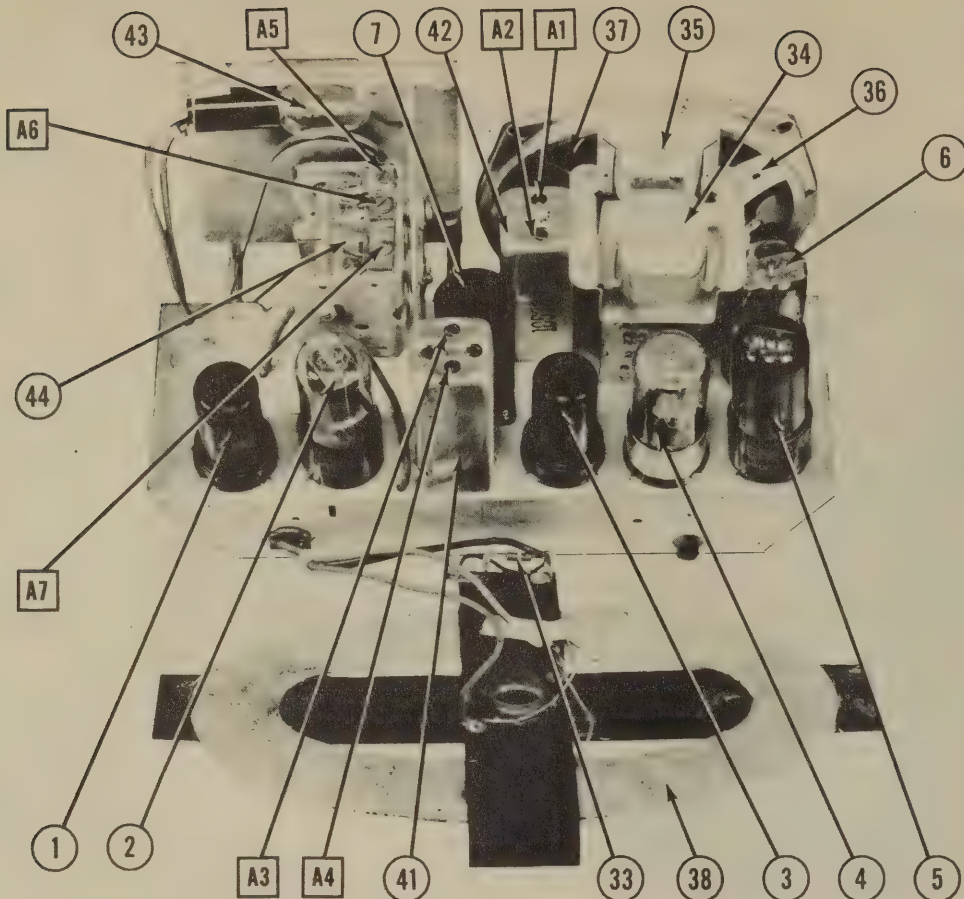
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		ARVIN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
23	680Ω	C20060-682	BTS-350K	BTS-350K		Blue-Gray-Red Converter Grid
24	330KΩ	C20060-334	BTS-350K	BTS-350K		Or.-Br.-I. Line Isolation
25	22KΩ	C20060-223	BTS-22K	BTS-22K		Red-Red-I. Oscillator Grid
26	6.8 Meg.	C20060-685	BTS-6.8 Meg	BTS-6.8 Meg		Blue-Gray-Grn. AVC Network
27	2.2 Meg.	C20060-225	BTS-2.2 Meg	BTS-2.2 Meg		Red-Red-Grn. AVC Network
28	6.8 Meg.	C20060-685	BTS-6.8 Meg	BTS-6.8 Meg		Blue-Gray-Grn. Af Grid
29	470KΩ	C20060-474	BTS-470K	BTS-470K		Yl.-Vl.-I. Af Plate Load
30A	150Ω	C20060-151	BW-2-150	BW-2-150		Br.-Grn.-Br. Output Cathode
30B	12K	C20070-123	ETA-12K	ETA-12K		Br.-Red-Or. Bleeder*
31A	15KΩ	C20060-153	BW-2-15	BW-2-15		Br.-Grn.-Or. Bleeder†
32	15Ω	C20060-150	BW-2-15	BW-2-15		Br.-Grn.-Blk. Surge Limiter
33	10KΩ	C20060-103	BTS-10K	BTS-10K		Br.-Blk.-Or. Antenna Loading

*Used in early production.

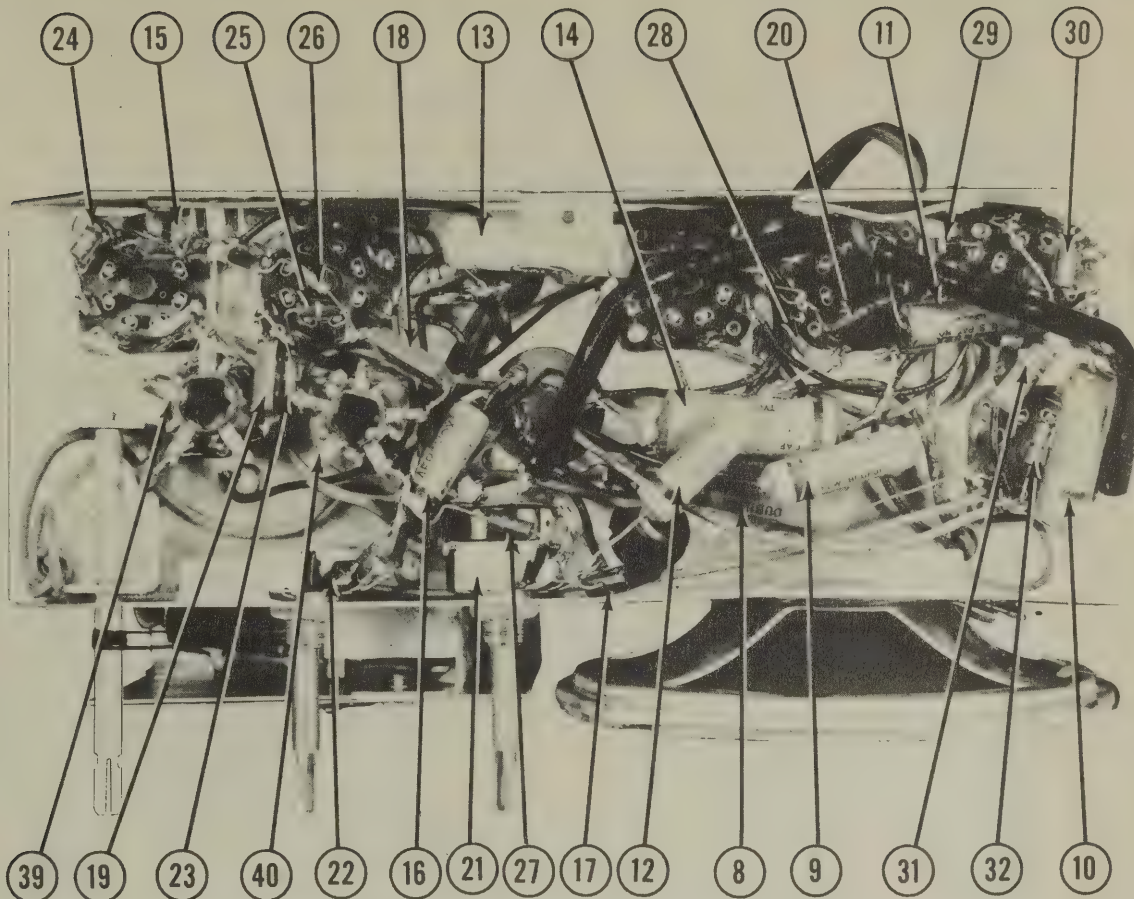
†Used in later production.

FILTER CHOKE

ITEM No.	TOTAL DIRECT CURRENT	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
		D.C. RESISTANCE	INDUCTANCE (0.000%)	ARVIN PART No.	STANCOR PART No.	THORDARSON PART No.	
34	.041A	215Ω	8.5 Henry-tes	AC18583-1	C-1723	T20052	C-2975



CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI. SEC.	PRI. SEC.	ARVIN PART No.	THORDARN PART No.	MERIT PART No.	
35	20500 3.050	1100	.380	.380	AC18582-1	A-3876 T22845	A-2928	

SPEAKER

ITEM No.	RATINGS				REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	VC DIA.	VC DIA.	ARVIN PART No.	JENSEN PART No.	THORDARN PART No.	
36	PM	3.050	1/2	1/2	C18550	ST-107 + Mod. PS-V		4Dr-11 and tap magnet frame.
37	5-5/32	1/2	1/2	1/2				NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT. Speaker Assembly, including Transformer Mounting Bracket, may be obtained under Part No. AC19372-1.

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA			INSTALLATION NOTES
		PRI.	SEC.	ARVIN PART No.	MEISSNER PART No.	THORDARN PART No.	
38A	Loop Ant.	00	.90	AC18579-1			Model 6640
39	RF Coil	4.50	100	AD21423-1			
40	Osc. Coil	.80	10.50	AC19860-1	14-1027		
41	Input IF	160	160	AC18580-1	14-1040		
42	Output IF	150	150	AC21009-1	16-6666		

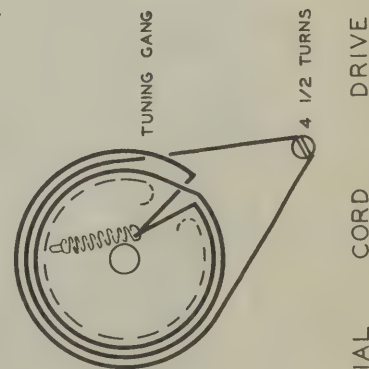
DIAL LIGHT

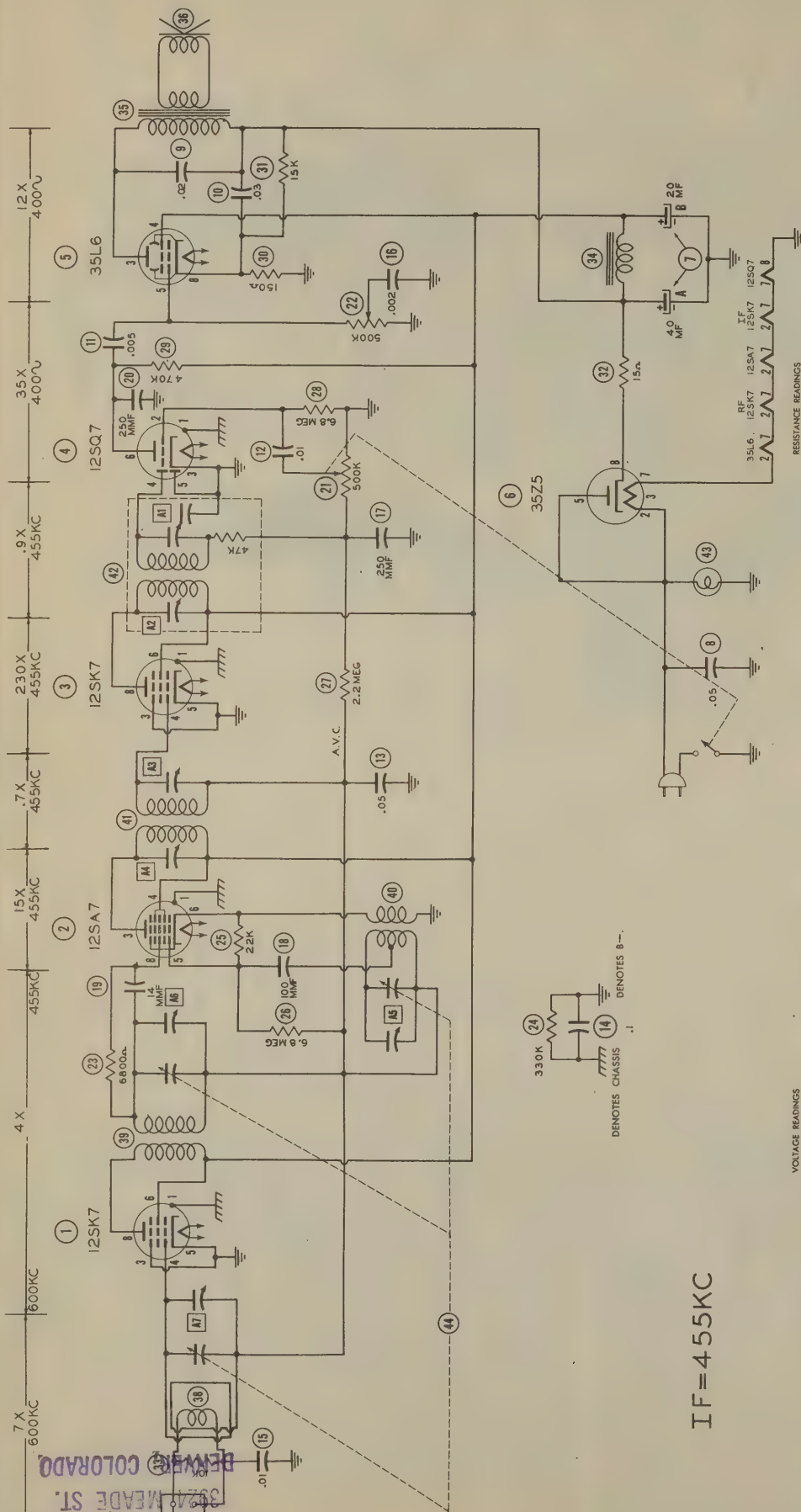
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	ARVIN PART No.	
43	Screw	110	.05		A-19135	Type C7

MISCELLANEOUS

ITEM No.	PART NAME	ARVIN PART No.	NOTES
44	Tuning Cap.	N-18564	38-514, 18-253, 13-92MF

When ordering replacement tuning cap. use No. stamped on back of original.





Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	128K70T	OV.	50VAC	OV.	-1VDC	OV.	93VDC	37VAC	93VDC
2	128A70T	OV.	37VAC	93VDC	OV.	-8.5VDC§	OV.	28VAC	-1VDC
3	128K70T	OV.	24VAC	-1VDC	OV.	93VDC	93VDC	12VAC	OV.
4	128A70T	OV.	-9VDC	OV.	-4VDC	OV.	55VDC	12VAC	OV.
5	35L65T	OV.	80VAC	108VDC	93VDC	OV.	OV.	50VAC	5.4VDC
6	35Z65T	OV.	117VAC	108VAC	111VDC	117VAC	OV.	80VAC	112VDC

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1.28K70T	330KΩ	44Ω	0Ω	2.7 16Ω	0Ω	12KΩ	34Ω	12KΩ
2	1.28K70T	330KΩ	34Ω	12KΩ	12KΩ	22KΩ	1Ω	24Ω	2.7 16Ω
3	1.28K70T	330KΩ	24Ω	0Ω	2.7 16Ω	1Ω	12KΩ	12Ω	12KΩ
4	1.28K70T	330KΩ	7 16Ω	0Ω	550Ω	0Ω	400KΩ	12Ω	0Ω
5	351.60T	INF.	65Ω	12KΩ	500KΩ	0Ω	44Ω	150Ω	12KΩ
6	352.50T	INF.	80Ω	77Ω	12KΩ	90Ω	INF.	65Ω	12KΩ

STAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

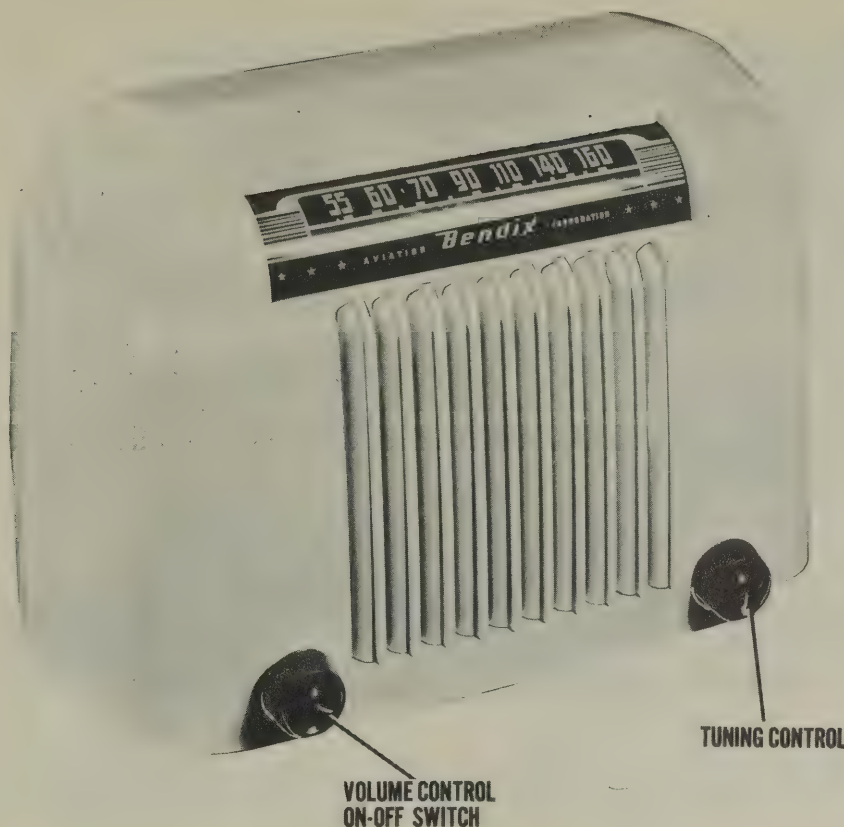
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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4719-2

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of 10% in voltage and resistance readings.
6. Voltage control at maximum, no signal applied for voltage measurements.



BENDIX MODEL 526MB

TRADE NAME	Bendix, Models 526MA, 526MB, 526MC		
MANUFACTURER	Bendix Radio, Div. of Bendix Aviation Corp., Baltimore, Md.		
TYPE SET	AC-DC Operated Superheterodyne with Loop Antenna		
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.		
POWER SUPPLY	105-125 Volts AC-DC		
TUNING RANGE—BROADCAST	540-1620KC	RATING	.240 Amps. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to 1st reference line at left end of dial backplate. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .01 MFD	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
2 50MMFD.	High side to ext. ant. terminal. Low side to chassis.	1475KC	2nd reference line from right end of dial backplate.	"	A5	Adjust for maximum output.
3 50MMFD.	"	"	Tune for maximum output.	"	A6	Adjust for maximum output. Check calibration at 965 & 580KC (2nd and 4th reference lines from left end of dial backplate). If calibration is not satisfactory, plates of both oscillator & ant. section must be "knifed" properly.

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DATE 12/47 SET #29 FOLDER #4719-3

PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

BENDIX MODELS
5261A, 5261B, 5231C

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		BENDIX PART No.	STANDARD REPLACEMENT		
1	Converter	12BE6	7CH		
2	IF Amp	12BA6	7BK		
3	Det.-AVC	12AT6	7BT		
4	Power Output	50B5	7BZ		
5	Rectifier	35W4	5BQ		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		BENDIX PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
6A	40 CAP.	CE3801	C2N511	TDS-2x40-150	TA-440	FRSA150-40	Filter - Red
B	12 40		TC44	TC-12-150	TC-15	BR1215	" - Blue
7	12 150		TP415	MPH-6-05	TC-15	DT6S5	" - Green
8	1.05 600	CP6T40	TP428	S-4-1	TC-13	DT4P1	Line Filter
9	.1 400	CP4T51	TP429	S-4-1	TC-13	DT4S3	Line Isolation
10	.006 400	CP4T36	TP429	S-6-03	TC-26	DT4S3	Output Plate Bypass
11	.004 600	CP4T70	TP429	S-6-006	TC-26	DT4S3	Audio Coupling
12	.004 600	CP4T16	TP429	S-6-004	TC-26	DT4S3	AVC Filter
13	.004 400	CP4T40	TP429	S-6-005	TC-26	DT4S5	Ext. Ant. Isolation
14	1000 500	CP6T116	TP429	S-6-004	TC-24	DT4S4	AF Plate Bypass
15	1000 500	CP6T446	TP429	S-6-021	TC-24	DT4S4	Osc. Grid
16	500 500	CP6A30	TP429	S-6-045	TC-24	DT4S5	

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		BENDIX PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	500K2	RV0800	TA48F	D13-133F	M-80-ZF	Volume Control
B	Shaft	Not Req.	Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch	"	ME26	41	SW-A	

Install a 47K3 resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (controls viewed from shaft side, terminals down.)

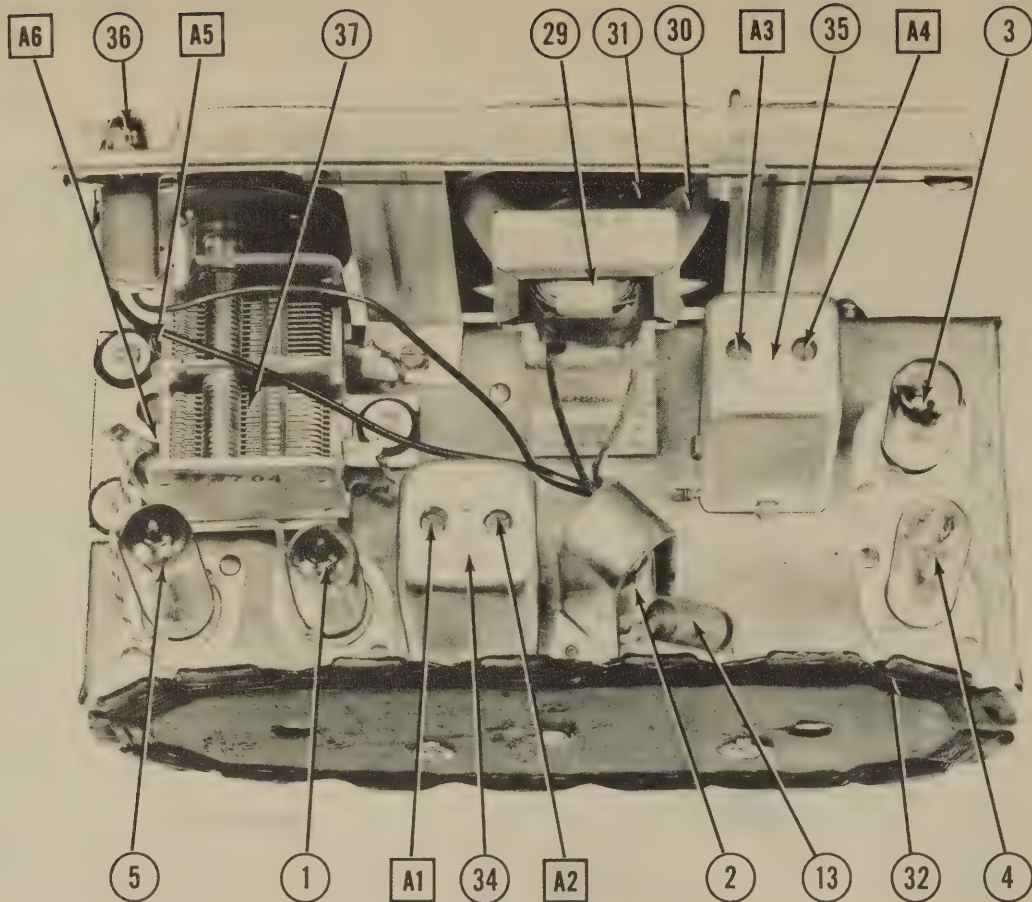
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IRC PART No.	IDENTIFICATION CODES
		BENDIX PART No.	WATTS		
17	22K3	RC1H40	1	BTS-22K	Red-Red-Or. Oscillator Grid
18	15 Meg.	RC1H76	1	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
19	3.3 Meg.	RC1H68	1	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
20	68K	RC1H10	1	BW-4-68	Blue-Gray-Blk. IF Cathode-Note 1
21	100K	RC1H12	1	BW-4-100	Br.-Blk.-Br. IF Decoupling
22	4.7 Meg.	RC1H70	1	BTS-4.7 Meg.	Yl.-Yl.-Grn. AF Grid
23	220K3	RC1H54	1	BTS-220K	Red-Red-Yl. AF Plate Load
24	470K3	RC1H53	1	BTS-470K	Yl.-Yl.-Yl. Output Grid
25	150K	RC1B28	1	BW-1-150	Br.-Grn.-Br. Output Cathode
26	150K3	RC4G26	1	BT-2-1500	Br.-Grn.-Red Filter
27	200K	RC1B31	1	BW-1-220	Red-Blk.-Br. " "
28	220K3	RC1H54	1	BTS-220K	Red-Red-Yl. Line Isolation

Note 1 - Not used in later production.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.		BENDIX PART No.	STANCOR PART No.	THORDARN PART No.	
	PRI.	SEC.	PRI.	SEC.				
29	1540Ω	3.22	1422	.62	TA0000	A-3876*	T22845*	*Bend mounting tabs down, file out slots and mount on original bracket.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	WV IMP.	JENSEN PART No.	
30	PH	3-20	ST-1131	*Fabricate new mounting bracket.
	CONF DIA.	WV DIA.	Mod. P4-X	
31	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT	

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	BENDIX PART No.	WEISSNER PART No.
32	Loop Ant.	20	1-70	410004	14-1040
33	Osc. Coil	70	60	105802	16-6658
34	Input IF	220	220	710000	16-6660
35	Output IF	250	250	710007	

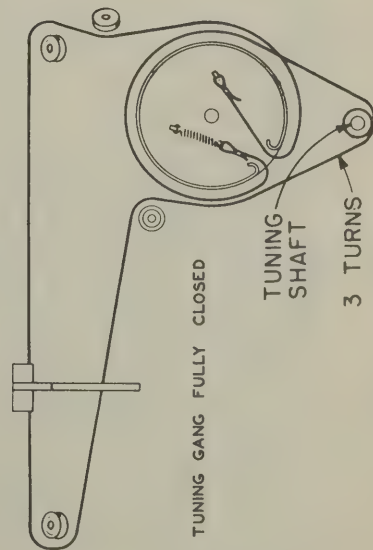
Add 100 MTFD from high side of volume control to B-.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA	INSTALLATION NOTES
					BENDIX PART No.	
36	Bayonet	6-8	0.15A	Brown	#47	Type 47 (Some models use Type 44)

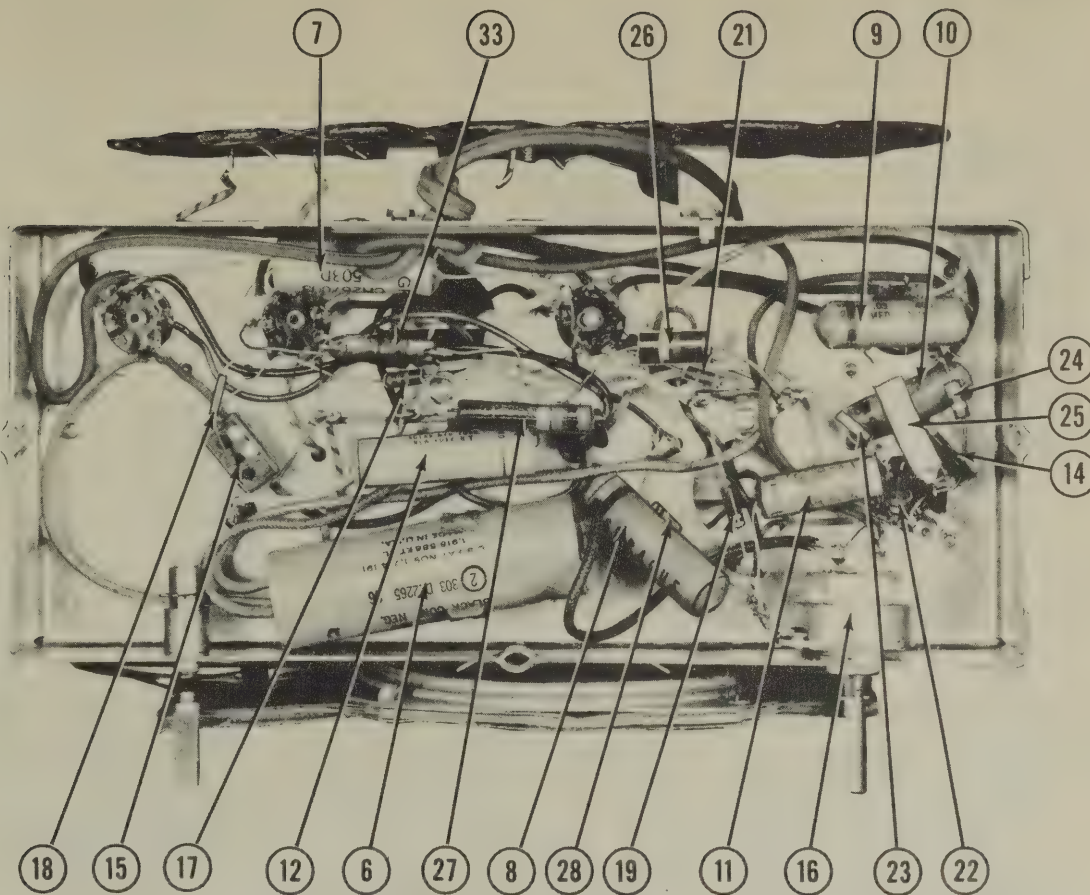
MISCELLANEOUS

ITEM No.	PART NAME	BENDIX PART No.	NOTES
37	2 Gang Var. Cap Dial "	CV0803 DS0A13 DS0A11 DS0A12	(28-464MTF, 37-222 MTF) Glass (Model 526MC) Plastic (Model 526MA) " (Model 526MB)



DIAL STRINGING DIAGRAM

CHASSIS—BOTTOM VIEW



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-8.7VDC	0V.	25VAC	12VAC	87VDC	87VDC	-6VDC
2	12A6	-6VDC	0V.	25VAC	38VAC	86VDC	86VDC	0V.
3	12AF6	-7VDC	0V.	12VAC	0V.	0V.	-5VDC	48VDC
4	50B5	0V.	5.2VDC	38VAC	87VAC	115VDC	88VDC	0V.
5	35K4	0V.	0V.	87VAC	117VAC	113VAC	113VAC	125VDC

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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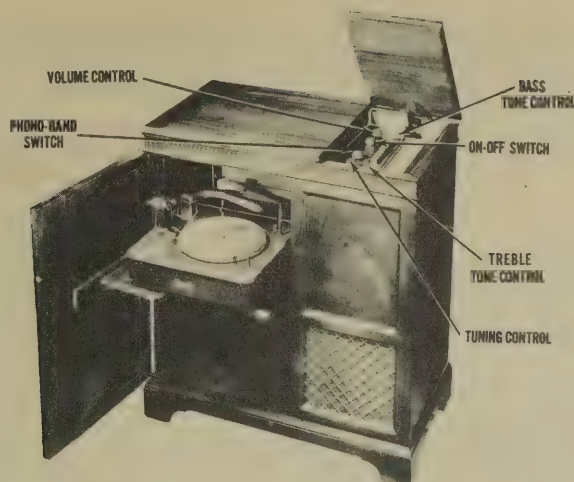
§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	129B6	22K3	.68	24K	12K	35K3	35K3	2.8 Me ₅
2	129A6	2.8 Me ₅	02	24K	35K	35K3	35K3	02
3	12AT6	5 H.P.	02	12K	02	02	520K3	255K3
4	50B5	500K3	150K	35K	87K	35K3	35K3	500K3
5	35W4	INF.	INF.	87K	118K	115K	115K	35K3

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

BENDIX MODEL 1217B

TRADE NAME	Bendix, Model 1217, 1217B, 1217D		
MANUFACTURER	Bendix Radio, Div. of Bendix Aviation Corp., Baltimore, Md.		
TYPE SET	AC Operated Combination Phono-Radio FM-AM Superheterodyne with Loop Antenna		
TUBES (TWELVE)	Types, 6AG5 RF Amp., 7F8 FM Converter, 6BE6 AM Converter, 7AH7 1st IF Amp., 7AH7 2nd IF Amp., 6H6 Det.-AVC, 6H6 FM Det., 6SN7GT 1st AF Amp., 6SN7GT Phase Inv., (2) 6V6GT Power Output, 5U4G Rectifier.		
POWER SUPPLY	110-120 Volts AC	RATING	1.10 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC	SHORT WAVE	5.7-16MC FREQ.MOD. 88-108MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The AM calibration marks are at the bottom of the dial glass
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

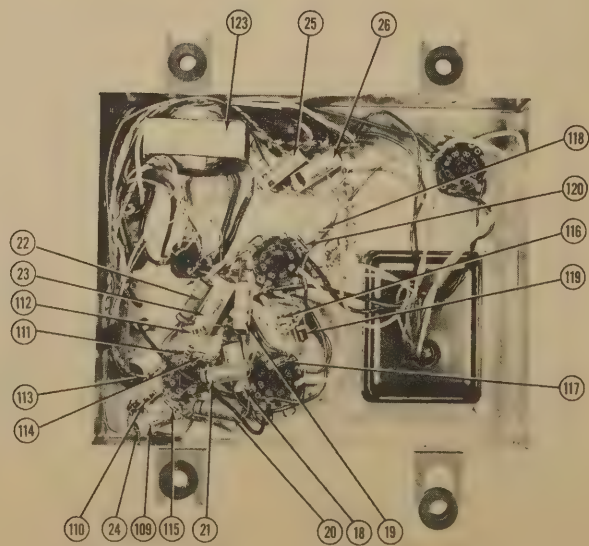
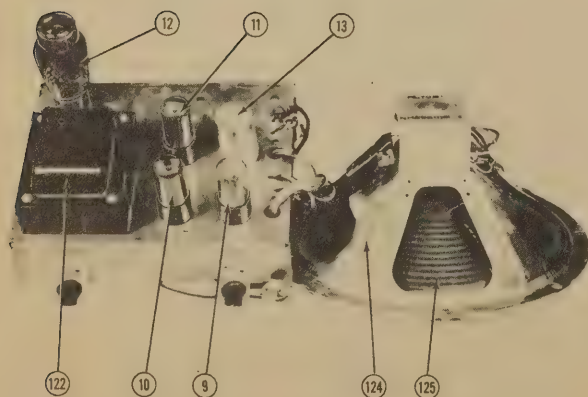
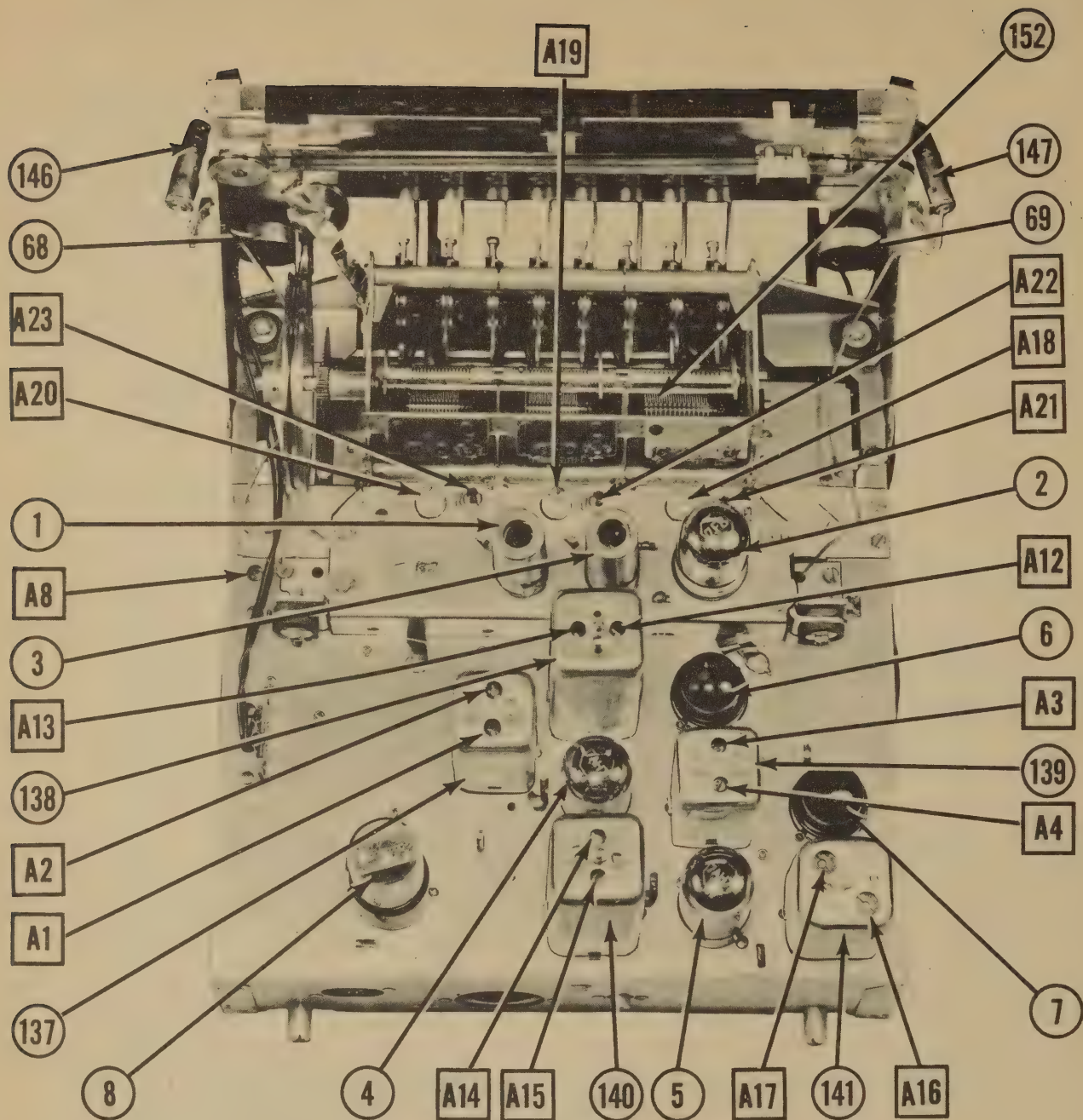
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .05 MFD.	High side to center "AM" stator of tuning cap. Low side to chassis.	455KC	BC (1 position counter-clockwise)	Tuning cap. fully open.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output
2 Connect 3.7 micro-henry choke across loop jacks.	High side through .01 MFD cap. to loop jack, (with yellow lead). Low side to loop jack (with green lead).	580KC	"	580KC	"	A5	" " " "
3 "	"	1475KC	"	1475KC	"	A6, A7, A8	" " " "
4 "	"	580KC	"	Tune for maximum output.	"	A5	Rock tuning cap. and adjust for maximum output. Repeat Steps 3 and 4 until no further increase in output can be obtained. Check calibration at 580 and 965KC. If not within limits "knife" plates of tuning cap.
5 400Ω carbon res.	High side to blue lead of FM ant. socket. Low side to chassis.	15MC	SW (fully clockwise)	15MC	"	A9	Adjust for maximum output. Tune signal generator to 14.1MC. If no signal is heard A9 is adjusted correctly. If a signal is heard retune signal generator to 15MC and loosen A9 until next peak is heard. Adjust for maximum output and recheck for image.
6 "	"	"	"	Tune for maximum output.	"	A10, A11.	Rock tuning cap. and adjust for maximum output.

FOR FM ALIGNMENT SEE REAR PAGE

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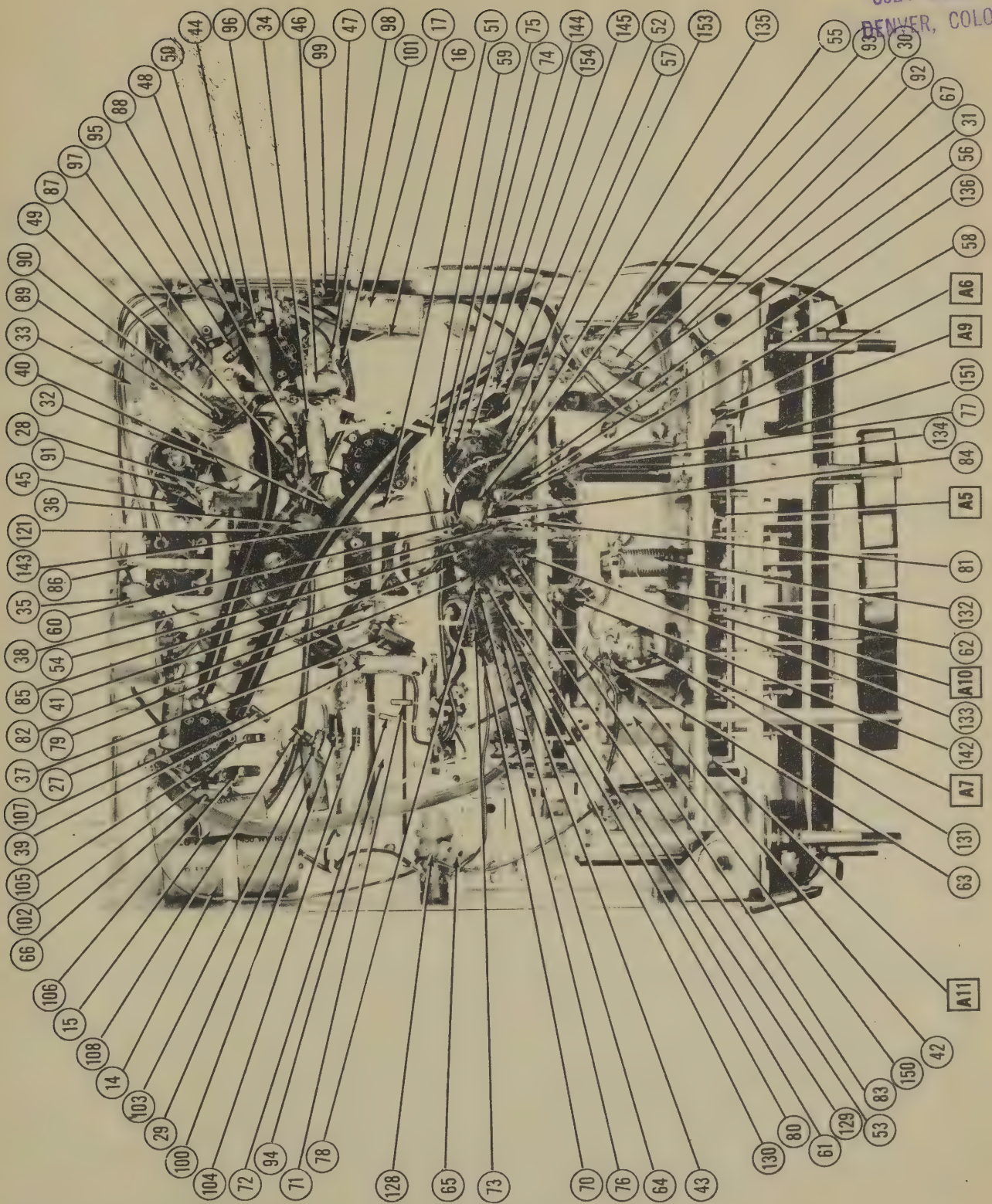
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L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

**BENDIX MODELS
1217, 1217B, 1217D PAGE 3**



PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

PARTS LIST AND DESCRIPTIONS (Continued)
RESISTORS

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		BENDIX PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6AG5	6AG5	7BD	Used in Issue "B"
2	FM Converter	7F8	7F8	8BW	
3	AM Converter	6BE8	6BE8	7CH	
4	1st IF Amp.	7AH7	7AH7	8V	
5	2nd IF Amp.	7AH7	7AH7	8V	
6	Det.-AVC	6H6	6H6	7Q	
7	FM Det.	6H6	6H6	7Q	
8A	1st AF Amp.	6SN7GT	6SN7GT	8BD	
9	1st AF Amp.	6J5	6J5	8BD	
10	Phase Inv.	6SN7GT	6SN7GT	8BD	
11	Power Output	6V6GT	6V6GT	7AC	
12	Rectifier	5U4-G	5U4-G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		BENDIX PART No.	REPLACEMENT DATA			CORNEILL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT		MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.			AEROVOX PART No.
13A	20	450	CE2A02	FP234	DY-2x20-450	EL-220	AF44J44†	UP6B338	▲ Filter
14A	16	450	CE2D00	25569	DH-816X450SS	UT-816	PRSA450-8-16	E25816	▲ Decoupling - Red
15	20	25	CE1T02	TC26	N-25-25	TA-25	PR25-25	BK202A	Cathode Bypass
16	20	25	CE1T02	TC26	N-25-25	TA-25	PR25-25	BR202A	DAVC Bias Network
17	3	50	CE1D00	TC40	N-4-150	TA-55	PR150-4	BR550	Ratio Detector Bias
18	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	Output Plate Bypass
19	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	Feedback
20	1	600	CE4T30	TP409	S-6-006	TC-26	684-006	W68D6	Audio Coupling
21	1	600	CE4T30	TP409	S-6-006	TC-26	684-006	W68D6	Hum Neutralization
22	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	AF Cathode Bypass
23	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	Line Filter
24	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	Audio Coupling
25	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	Decoupling
26	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	Tone Comp.
27	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	Audio Coupling
28	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	2nd IF Screen Bypass
29	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	2nd IF Decoupling
30	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	AVC Filter
31	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	1st IF Grid Filter
32	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	1st IF Screen Bypass
33	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	AVC Filter
34	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	AM Conv. Screen Bypass
35	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	AM Conv. Decoupling
36	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Conv. Decoupling
37	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	AVC Filter
38	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	RF Screen Bypass
39	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	RF Screen Bypass
40	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	Audio Coupling
41	1	120	CE4T31	TP421	S-4-01	TC-11	484-01	W481	2nd IF Cathode Bypass
42	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	Ratio Det. Fil. Bypass
43	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Diode Load Cap.
44	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Diode Load Cap.
45	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	RF Filter
46	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	De-emphasis
47	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	AVC Filter
48	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Converter Decoupling
49	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Converter Decoupling
50	1	400	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Conv. Plate Bypass
51	1	150	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Osc. Coupling
52	1	150	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Osc. Feedback
53	1	1000	CE4T31	TP421	S-4-01	TC-11	484-01	W481	Fixed Trimmer
54	1	500	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Osc. Grid
55	1	500	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Coupling
56	1	500	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Coupling
57	1	500	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Coupling
58	1	500	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Coupling
59	1	500	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Coupling
60	1	500	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Coupling
61	1	500	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Coupling
62	1	500	CE4T31	TP421	S-4-01	TC-11	484-01	W481	FM Coupling

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		BENDIX PART No.	STANDARD REPLACEMENT		
119	Red-Blk.-Br. Output Cathode	RC4D16	RC4D16	2	Red-Blk.-Br. Output Cathode
120	Br.-Blk.-Blk. Series Pilot Light	RC2H00	RC2H00	10K	Br.-Blk.-Blk. Series Pilot Light
121	Br.-Blk.-Or. Decoupling	RC3H36	RC3H36	10K	Br.-Blk.-Or. Decoupling
153	Red-Red-Red FM Conv. Cathode	RC1H28	RC1H28	1	Red-Red-Red FM Conv. Cathode
154	Yl.-vi.-Red FM Conv. Plate	RC2H32	RC2H32	4700Ω	Yl.-vi.-Red FM Conv. Plate

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA			MERIT PART No.
		PHI.	SEC. 1	SEC. 2	
122	117V AC 630V CT 5.0V AC 6.3V AC @ .56A @ .138A @ 3.0A SEC. 4 @ 4.2A SEC. 4 @ 4.2A				

*Use universal mounting brackets. †Drill new mounting holes. ‡Add series resistor to reduce plate voltage.

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		IMPEDANCE	DC RES.	BENDIX PART No.	
123	700Ω 3.1Ω 400Ω			TA0400	A-3824 T22858 A-2935

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA			INSTALLATION NOTES
		FIELD RES.	VC IMP.	BENDIX PART No.	
124	380Ω 3.1Ω			SE2B00	
125	11-5/8" 1-1/4"				NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PHI.	SEC.	BENDIX PART No.	MEISSNER PART No.
126	Loop Ant.		1Ω	BZ0B06	
127	FM Ant.		1Ω	LTOA00	14-1044
128	EC Ant. Coil	39Ω	1Ω	TR1H00	
129	SW Ant. Coil	1.3Ω	1Ω	LAOF00	
130	FM Ant. Coil	0Ω	0Ω	TR1L00	14-1027
131	EC RF Coil	70Ω	3.5Ω	TR1C00	14-1045
132	SW RF Coil	9Ω	1Ω	LI0F00	
133	FM Conv. Decoupling		0Ω	LO1B01	14-1040
134	FM Conv. Decoupling	.3Ω	7.5Ω	LO1C00	14-1046
135	AVC Filter		0Ω	LO1F00	
136	RF Plate Decoupling		9Ω	TI0C07	16-6658
137	RF Screen Bypass		9Ω	TI0C07	16-6670
138	Audio Coupling		1Ω	TI0D01	
139	2nd IF Cathode Bypass		1Ω	TI0D01	
140	Ratio Det. Fil. Bypass		2.5Ω	LF0A03	
141	FM Diode Load Cap.		1.2Ω	LF0A03	
142	FM Diode Load Cap.		1.2Ω	LF0A02	
143	RF Filter		1.2Ω	LF0A02	
144	De-emphasis		1.2Ω	LF0A02	
145	AVC Filter		1.2Ω	LF0A02	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	BENDIX PART No.	
146	Bayonet	6-8	0.25	Blue	#44	Type 44
147	"	6-8	0.15	Brown	#47	Type 47

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		BENDIX PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
63	150 CAP. 500VOLT	C15A26	MC236	M0.5-215	1F4-315	Fixed Trimmer
64	150 CAP. 500VOLT	C15A26	MC236	M0.5-215	1F4-315	Fixed Trimmer
65	150 CAP. 500VOLT	C15A26	MC236	M0.5-215	1F4-315	Fixed Trimmer

Do not use bypass section.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		BENDIX PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
67A	2 Meg. Shaft	RV4C01	TR2E1	D18-139X	AT-116	Volume Control
68A	50K Shaft	Not Req.	SR1	A & 442	RS-5	Attach to 67A per instructions
69A	1 Meg. Shaft	Not Req.	MR33	D13-125	M-46-Z	Treble Control
70A	1 Meg. Shaft	Not Req.	MR53	Not Req.	Not Req.	Attach to 68A per instructions
71A	1 Meg. Shaft	Not Req.	Not Req.	D13-137	Not Req.	Attach to 69A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		BENDIX PART No.	IRC PART No.	RESISTANCE - WATTS	
70	4.7 Meg.	RC2382	BTS-4.7 Meg.	+	Y1.-V1.-Grn. RF Grid
71	120K	RC2H32	BTS-120K	+	Br.-Red-Y1. RF Screen Dropping
72	4.7 Meg.	RC1H58	BTS-4.7 Meg.	+	Y1.-V1.-Red RF Plate Decoupling
73	4.7 Meg.	RC1H12	BTS-22K	+	Y1.-V1.-Grn. RF Grid
74	470K	RC1G40	BW-2-100	+	Red-Red-Or. FM Converter Grid
75	22K	RC1G14	BW-2-150	+	Br.-Blk.-Br. Parasitic Suppressor
76	150K	RC1H64	BTS-1.5 Meg.	+	Br.-Grn.-Br.
77	1.5 Meg.	RC1H64	BTS-22K	+	Red-Red-Grn. AM Converter Grid
78	22K	RC1H44	BTS-4.7 Meg.	+	Y1.-V1.-Grn. AVC Network
79	4.7 Meg.	RC1H64	BTS-1.5 Meg.	+	Br.-Grn.-Grn. AVC Network
80	47K	RC2H32	BTS-47K	+	Y1.-V1.-Red AM Converter Screen Dropping
81	1.5 Meg.	RC2H32	BTS-27K	+	Y1.-V1.-Or. AM Converter Screen Bleeder
82	47K	RC1G08	BW-2-47	+	Y1.-V1.-Blk. 1st IF Cathode
83	47K	RC1H58	BTS-470K	+	Y1.-V1.-Y1. 2nd IF Grid
84	220K	RC1H54	BTS-1.5 Meg.	+	Br.-Grn.-Grn. AVC Network
85	470K	RC1H64	BTS-1.00K	+	Blue-Gray-Or. 2nd IF Decoupling
86	1.5 Meg.	RC2G34	BW-2-220	+	Red-Red-Br. 2nd IF Cathode
87	100K	RC1H16	BTS-470K	+	Y1.-V1.-Y1. Phono Shunt
88	220K	RC1H51	BTS-100K	+	Br.-Blk.-Y1. Tone Compensation
89	220K	RC1H54	BTS-220K	+	Red-Red-Y1. DAVC Bias
90	100K	RC1G24	BTS-100K	+	Br.-Blk.-Red DAVC Bias
91	100K	RC1H42	BTS-33K	+	Or.-Or.-Y1. De-emphasis
92	10K	RC1G35	BTS-10K	+	Or.-Or.-Or. Ratio Detector Bias Network
93	10K	RC2H20	BTS-470	+	Y1.-V1.-Br. Decoupling
94	2.2 Meg.	RC1H68	BTS-2.2 Meg.	+	Red-Red-Grn. DAVC Network
95	100K	RC1H24	BTS-100K	+	Br.-Blk.-Red 2nd AF Cathode Load
96	100K	RC1H44	BTS-47K	+	Y1.-V1.-Or. 2nd AF Cathode Load
97	100K	RC2H33	BTS-15K	+	Br.-Grn.-Or. 2nd AF Cathode
98	10K	RC2H36	BTS-10K	+	Br.-Blk.-Or. 1st AF Cathode
99	10K	RC1H51	BTS-100K	+	Or.-Blk.-Y1. 3rd AF Grid
100	10K	RC1G24	BTS-100K	+	Y1.-V1.-Red 1st AF Cathode
101	10K	RC2H33	BTS-15K	+	Br.-Blk.-Or. 1st AF Cathode
102	10K	RC2H36	BTS-10K	+	Or.-Blk.-Y1. 3rd AF Grid
103	10K	RC1H51	BTS-100K	+	Y1.-V1.-Red 1st AF Cathode
104	10K	RC1G24	BTS-100K	+	Br.-Blk.-Red 3rd AF Cathode
105	10K	RC2H33	BTS-15K	+	Y1.-V1.-Or. Phase Inverter Plate Load
106	10K	RC2H36	BTS-10K	+	Br.-Blk.-Red Phase Inverter Cathode
107	10K	RC1H51	BTS-100K	+	Red-Red-Or. Hum Neutralization
108	10K	RC1G24	BTS-100K	+	Br.-Grn.-Y1. Feedback
109	10K	RC2H33	BTS-15K	+	Y1.-V1.-Or. Phase Inverter Grid
110	10K	RC2H36	BTS-10K	+	Y1.-V1.-Y1. Output Grid
111	10K	RC1H51	BTS-100K	+	Y1.-V1.-Y1.
112	10K	RC1G24	BTS-100K	+	
113	10K	RC2H33	BTS-15K	+	
114	10K	RC2H36	BTS-10K	+	
115	10K	RC1H51	BTS-100K	+	
116	10K	RC1G24	BTS-100K	+	
117	10K	RC2H33	BTS-15K	+	
118	10K	RC2H36	BTS-10K	+	

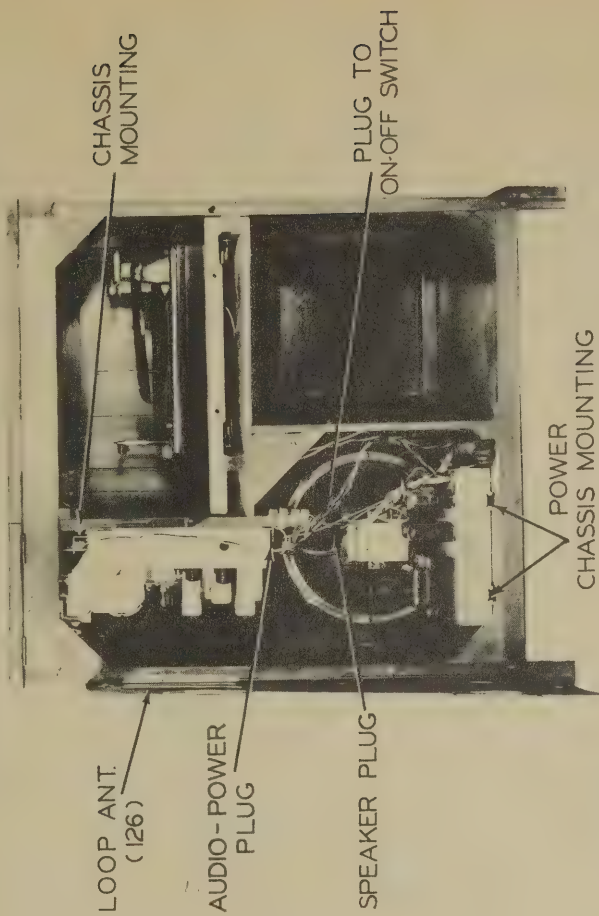
PARTS LIST AND DESCRIPTIONS (Continued)

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA	REMARKS
	BENDIX PART No.	
148	L-71-S	

MISCELLANEOUS

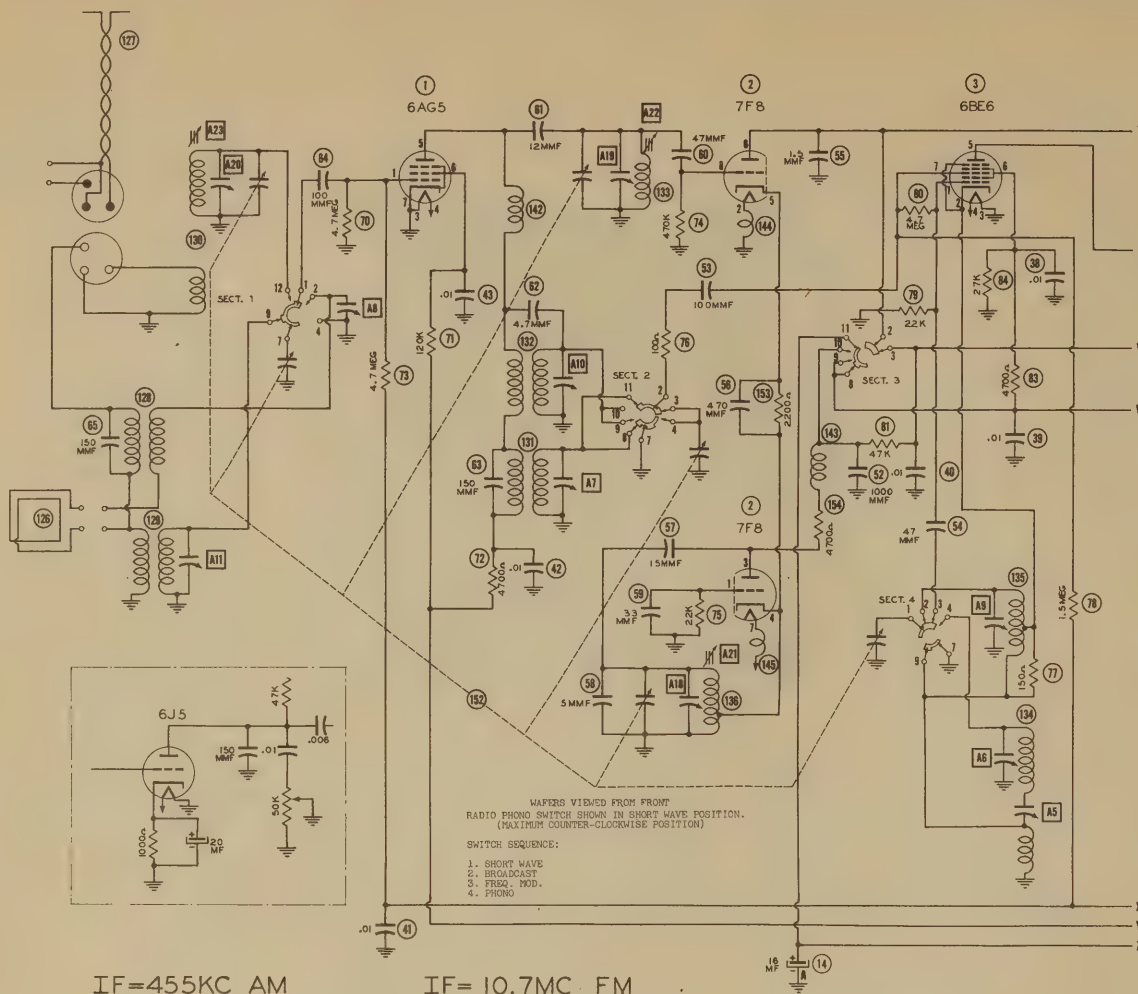
ITEM No.	PART NAME	BENDIX PART No.	NOTES
150	Switch	SR4300	Band-Phono
151	On-Off Switch	SR2L00	Rotary Snap (SPST)
152	Tuning Cap.	CW0500	AM (16-495MTF, 16-495MTF, 16-350MTF)
A5	Padder	CTL1A12	BC Osc. Adj.
A6	Trimmer	CTL1A13	BC Osc. Adj.
A7	"	CTL1A14	BC RF Adj.
A8	"	CTL1A15	BC Ant. Adj.
A9	"	CTL1A16	SW Osc. Adj.
A10	"	CTL1A17	SW RF Adj.
A11	"	CTL1A18	SW Ant. Adj.
A12	"	CTL1A19	FM Osc. Adj.
A13	"	CTL1A20	FM RF Adj.
A14	"	CTL1A21	FM Ant. Adj.
A15	"	CTL1A22	Glass



DISASSEMBLY INSTRUCTIONS

1. Remove six push-on type control knobs.
2. Remove twenty wood screws holding loop antenna to back of cabinet.
3. Remove loop antenna plugs from chassis. Remove loop antenna from cabinet.
4. Remove FM and external antenna plug from tuning chassis.
5. Remove power supply plug from tuning chassis.
6. Remove speaker plug from speaker.
7. Remove phono-pickup plug from tuning chassis.
8. Disconnect AC power plug from socket on bottom of record changer.
9. Remove phono-motor plug from socket on bottom of record changer.
10. Remove four bolts holding tuning chassis in cabinet. Remove from cabinet.
11. Remove four bolts holding power supply chassis in cabinet. Remove from cabinet.
12. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.

PROPERTY OF
L. F. BLANKENSHIP
3924
DENVER, COLORADO



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6AG5	-5VDC	OV.	OV.	6.3VAC	280VDC	88VDC	OV.	-
2	7F8	-2VDC	OV.	135VDC	OV.	2.2VDC	130VDC	6.3VAC	OV.
3	6BE6	-8VDC	OV.	OV.	6.3VAC	152VDC	100VDC	-3VDC	-
4	7AH7	OV.	220VDC	220VDC	OV.	OV.	.5VDC	.4VDC	6.3VAC
5	7AH7	OV.	225VDC	225VDC	OV.	OV.	1.8VDC	6.3VAC	OV.
6	6H6	OV.	6.3VAC	-1VDC	OV.	-5VDC	OV.	OV.	OV.
7	6H6	OV.	20VDC*	15VDC	16VDC	14VDC	15VDC	20VDC*	15VDC
8	6SN7GT	1VDC	122VDC	17VDC	OV.	38VDC	2.6VDC	6.3VAC	OV.
9	6SN7GT	OV.	108VDC	3.2VDC	OV.	118VDC	3.4VDC	6.3VAC	OV.
10	6V6GT	OV.	OV.	285VDC	290VDC	OV.	OV.	6.3VAC	20VDC
11	6V6GT	OV.	OV.	285VDC	290VDC	OV.	1.4VAC	6.3VAC	20VDC
12	5U4G	OV.	320VDC	OV.	315VAC	OV.	315VAC	OV.	320VDC

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

* VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

‡ TAKEN WITH VACUUM TUBE VOLTMETER.

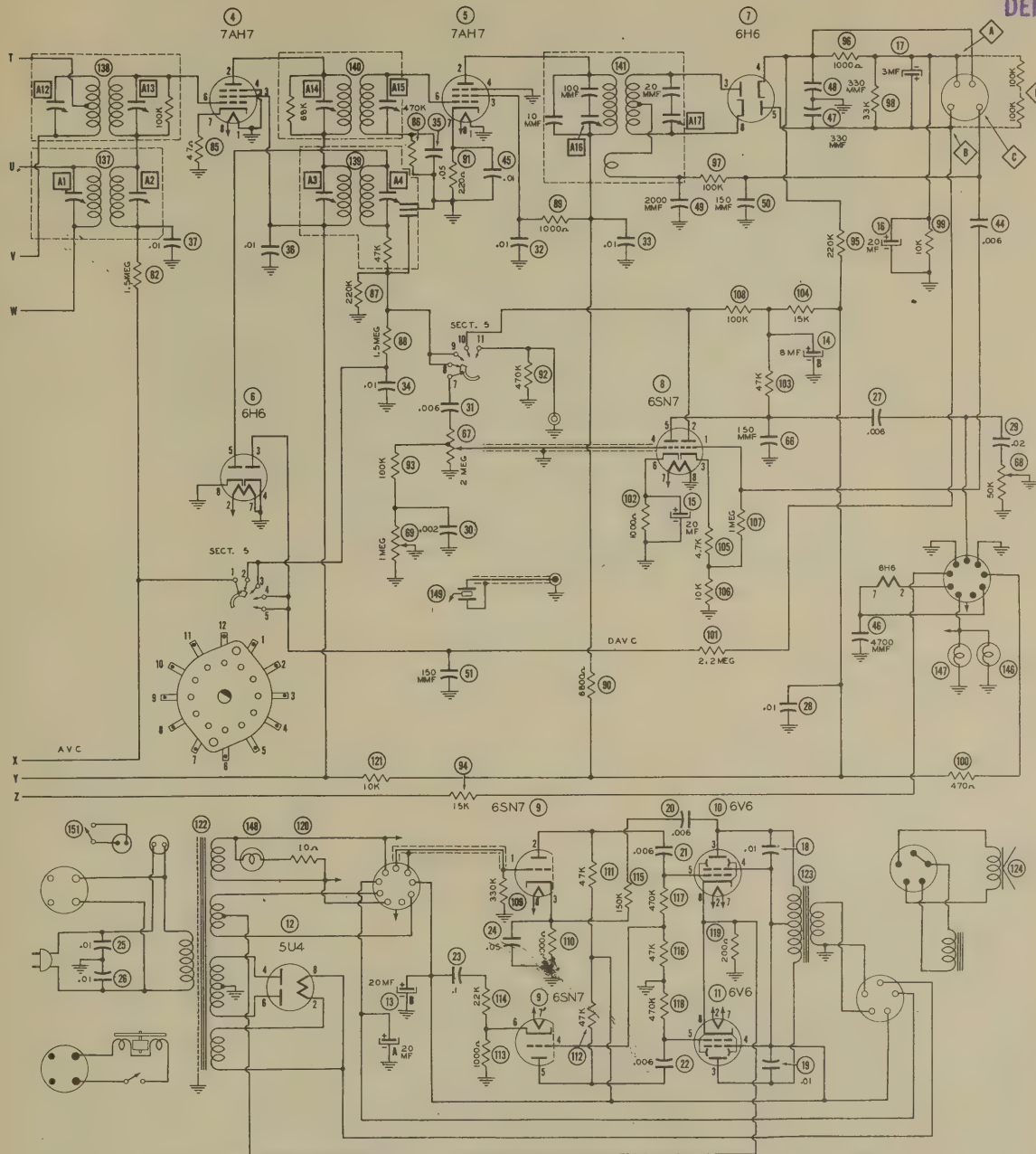
* MEASURE 6.4V AC BETWEEN FILAMENT PINS.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6AG5	2.5 Meg	OV.	OV.	.12	55K2	170K2	OV.	-
2	7F8	22K2	.12	60K2	OV.	2K2	105K2	.22	470K2
3	6BE6	22K2	.62	OV.	.12	55K2	20K2	2 Meg.	-
4	7AH7	OV.	50K2	50K2	OV.	OV.	3.2 Meg.	502	.12
5	7AH7	OV.	47K2	48K2	OV.	OV.	500K2	2202	.12
6	6H6	OV.	.12	2.2 Meg.	OV.	250K2	OV.	OV.	OV.
7	6H6	OV.	155K2	INF.	11K2	43K2	10K2	2102	INF.
8	6SN7GT	1.2 Meg	200K2	15K2	1.7 Meg	100K2	1K2	.12	OV.
9	6SN7GT	290K2	90K2	1K2	50K2	90K2	1K2	.12	OV.
10	6V6GT	OV.	OV.	40K2	40K2	550K2	50K2	.12	2102
11	6V6GT	OV.	OV.	40K2	40K2	470K2	52	.12	2102
12	5U4G	OV.	40K2	INF.	462	INF.	502	INF.	40K2

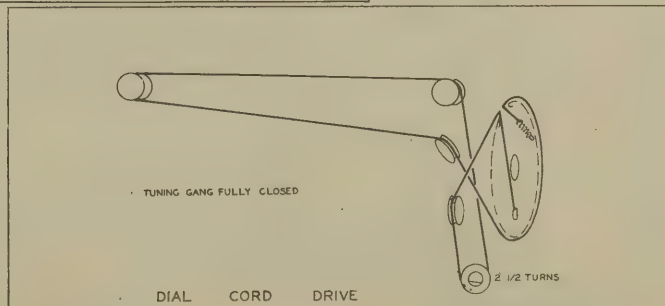
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



STAGE GAIN MEASUREMENTS		
ANT. TO RF GRID	10X	600KC
RF GRID TO CONV. GRID	10X	600KC
CONV. GAIN	45X	IN 600KC OUT 455KC
1st IF TRANS.	.75X	455KC
IF TUBE	250X	455KC
2nd IF TRANS.	.65X	455KC
1st AUDIO	16X	400 μ
2nd AUDIO	5X	4 μ \sim V
OUTPUT	14X	400 μ

A PHOTOFAC STANDARD NOTATION SCHEMATIC
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4719-4

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

FM ALIGNMENT

FM Dummy antenna consists of 300Ω resistor in series with 30Ω resistor with a .01 MFD. capacitor connected to junction of the 300Ω and 30Ω resistors. The 300Ω resistor is connected to the ungrounded side of the 300Ω coaxial lead at the FM Ant. socket. The 30Ω resistor is connected to chassis. The 30Ω resistor may be varied to match the output impedance of the signal generator.

FM ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Frequency modulate the signal with 60V, 450KC sweep. Connect the synchronized sweep voltage from the signal generator to the horizontal amplifier. The horizontal sweep voltage may be taken from power line if signal generator does not have a sync. voltage output. There may be some phase shift encountered between signal generator and scope horizontal sweep resulting in a double trace pattern per Fig. 2. IF provision is made for this in the scope rotate phase control until the two curves coincide as in Fig. 1. If no provision is made for this the same thing may be accomplished by inserting a capacitor of suitable value (.01 to .1 MFD) in series with the horizontal sweep input.



Fig. 1



Fig. 2

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7 .05 MFD.	High side to center "FM" stator of tuning cap. Low side to chassis.	10.7MC (unmodulated)	FM (1st position clock-wise)	Tuning cap. fully open.	DC probe of VTVM connected to Point A. Common lead to Point B.	A12,A13 A14,A15 A16	Connect a short from extreme left "FM" stator of tuning cap. to chassis. Adjust for maximum deflection in order given and repeat.
8 .05 MFD	High side to center "FM" stator of tuning cap. Low side to chassis.	Approx. 10.7MC (freq. modulated). Adjust signal gen. until curve of Figure 1 is centered on horizontal sweep line.	FM (1st position clock-wise)	Tuning cap. fully open.	Vertical amplifier to Point C. Ground to chassis	A17	Adjust for maximum symmetry per curve of Fig. 1. It may be necessary to adjust alternately A16 and A17 to obtain best possible curve.
9 FM Dummy Ant. (See pre-align notes.)	High side to .01 MFD. cap. of dummy. Low side to chassis.	106MC (freq. modulated)	"	106MC	"	A18	Remove short from "FM" stator from Step 7 and adjust until "S" curve is centered on horizontal sweep scope line. Check for image by tuning sig. gen. to 84.6MC. If signal is not heard then A18 is adjusted correctly. If signal is heard retune sig. gen. to 106MC and loosen trimmer until next peak is obtained. Then adjust until "S" curve is centered on horizontal sweep scope line and recheck for image.
10 "	"	"	"	"	"	A19, A20	Rock tuning cap. to keep "S" curve centered on horizontal sweep scope line while adjusting A19 and A20 for maximum height of curve.
11 "	"	90MC	"	90MC	"	A21	Adjust until "S" curve is centered on horizontal sweep scope line.
12 "	"	"	"	"	"	A22, A23	Adjust A22, A23 for maximum height of curve. Repeat Steps 9, 10, 11 & 12 until no further improvement can be made.

FM ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

The VTVM must not be AC-DC or with ground connected to AC line or through resistor. The values of the two 100KΩ resistors in Step 8 should be within 1% of each other.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7 .01 MFD.	High side to center "FM" stator of tuning cap. Low side to chassis.	10.7MC (unmodulated)	FM	Tuning cap. fully open.	DC probe of VTVM connected to Point A. Common lead to Point B.	A12,A13 A14,A15 A16	Connect a short from extreme left "FM" stator of tuning cap. to chassis. Adjust for maximum deflection in order given and repeat.
8 .01 MFD	"	"	"	"	Connect two 100KΩ resistors as shown on schematic. DC probe to point C. Common lead to Point D.	A17	If available use zero center scale VTVM. Adjust for zero deflection. Repeat Step 7, adjusting A16 only, for maximum deflection and Step 8 adjusting A7 for zero deflection several times to assure correct alignment.
9 FM Dummy (See pre-align notes)	High side to .01 MFD cap. of dummy. Low side to chassis.	106MC (amplitude modulated)	"	106MC	DC probe of VTVM connected to Point A. Common lead to Point B.	A18	Remove short from FM stator of Step 13. Adjust for maximum deflection. Check for image as described in Step 9 under visual alignment.
10 "	"	"	"	Tune for maximum deflection.	"	A19,A20	Rock tuning cap. and adjust for maximum deflection.
11 "	"	90MC	"	90MC	"	A21, A22, A23.	Adjust for maximum deflection. Repeat Steps 9, 10 and 11 until no further increase in deflection can be obtained.

PUSHBUTTON ADJUSTMENTS

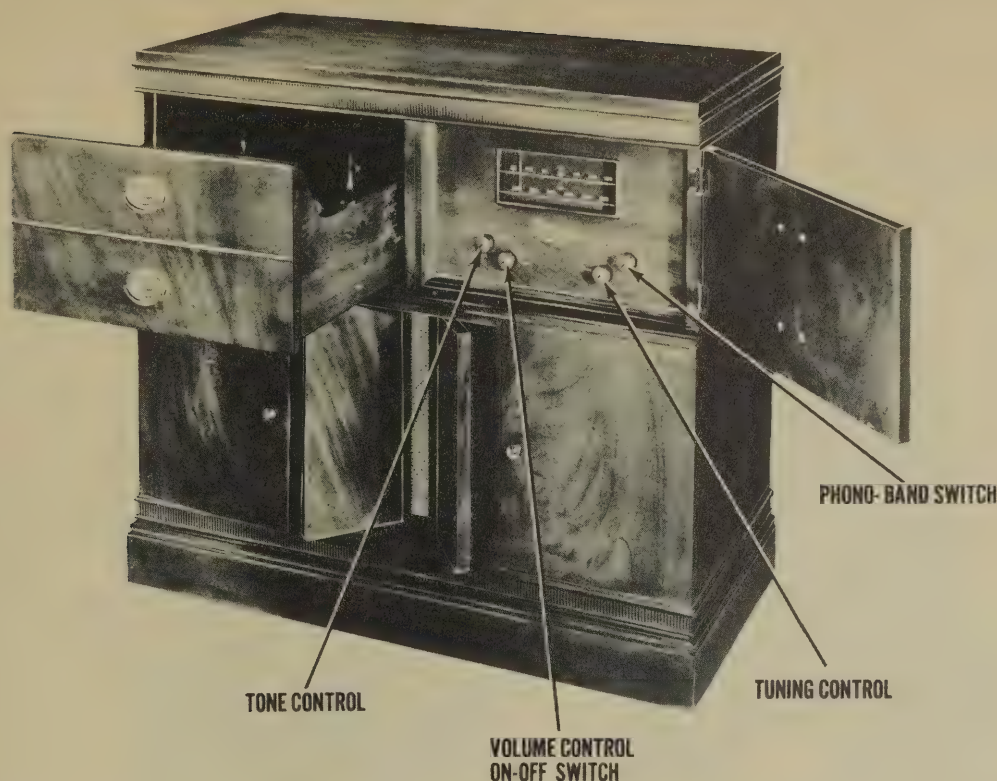
1. Turn receiver on and allow it to warm up for about 15 minutes.
2. Remove pushbuttons by pulling out and loosen set screws behind buttons.
3. Manually tune in desired station and push any button start in completely.
4. Holding shaft in tight set screw firmly.
5. Check accuracy of setting by debuning with button shaft.
6. If setting is off repeat Steps 3, 4 and 5.
7. To set up the remaining buttons follow the same procedure as outlined above.
8. Replace pushbuttons.

FOR AM ALIGNMENT SEE FRONT PAGE

PHOTOFACT* Folder

BRUNSWICK MODELS T-4000
"Buckingham," T-4000½ "Buckingham,"
D-6876 "Plymouth."

PROPERTY OF
L. F. BLANKENSHIP
 3924 MEADE ST.
 DENVER, COLORADO



"Buckingham," T-4000½ "Buckingham,"
 D-6876 "Plymouth."

BRUNSWICK MODELS T-4000
"Buckingham," T-4000½ "Buckingham,"
D-6876 "Plymouth." PAGE 1

TRADE NAME	Brunswick, Models T-4000 "Buckingham", T-4000½ "Buckingham", D-6876 "Plymouth"		
SUPPLIER	Radio & Television, Inc., 244 Madison Ave., New York 16, N.Y.		
TYPE SET	AC Operated Phono-Radio Combination AM-FM Superheterodyne Receiver with Self Contained Loop Antenna		
TUBES. (TEN)	Types, 6AG5 FM RF Amp., 6SB7Y FM Conv., 6SG7 A1 RF-FM 1st IF, 6SA7 AM Converter, 6SF7 AM IF-Det.-AVC-FM 2nd IF, 6H6 FM Det.-AVC, 6SL7GT 1st Audio Amp.-Phase Inv., (2) 6V6GT Power Output, 5Y3GT Rectifier.		
POWER SUPPLY	105-125 Volts AC	RATING	.640 Amp. @ 117V AC
TUNING RANGE - BROADCAST	540-1620KC	FREQ. MOD.	87.5 - 108MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.
 Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
 Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
 Never adjust AM-IF transformers without rechecking FM-IF alignment.

AM ALIGNMENT

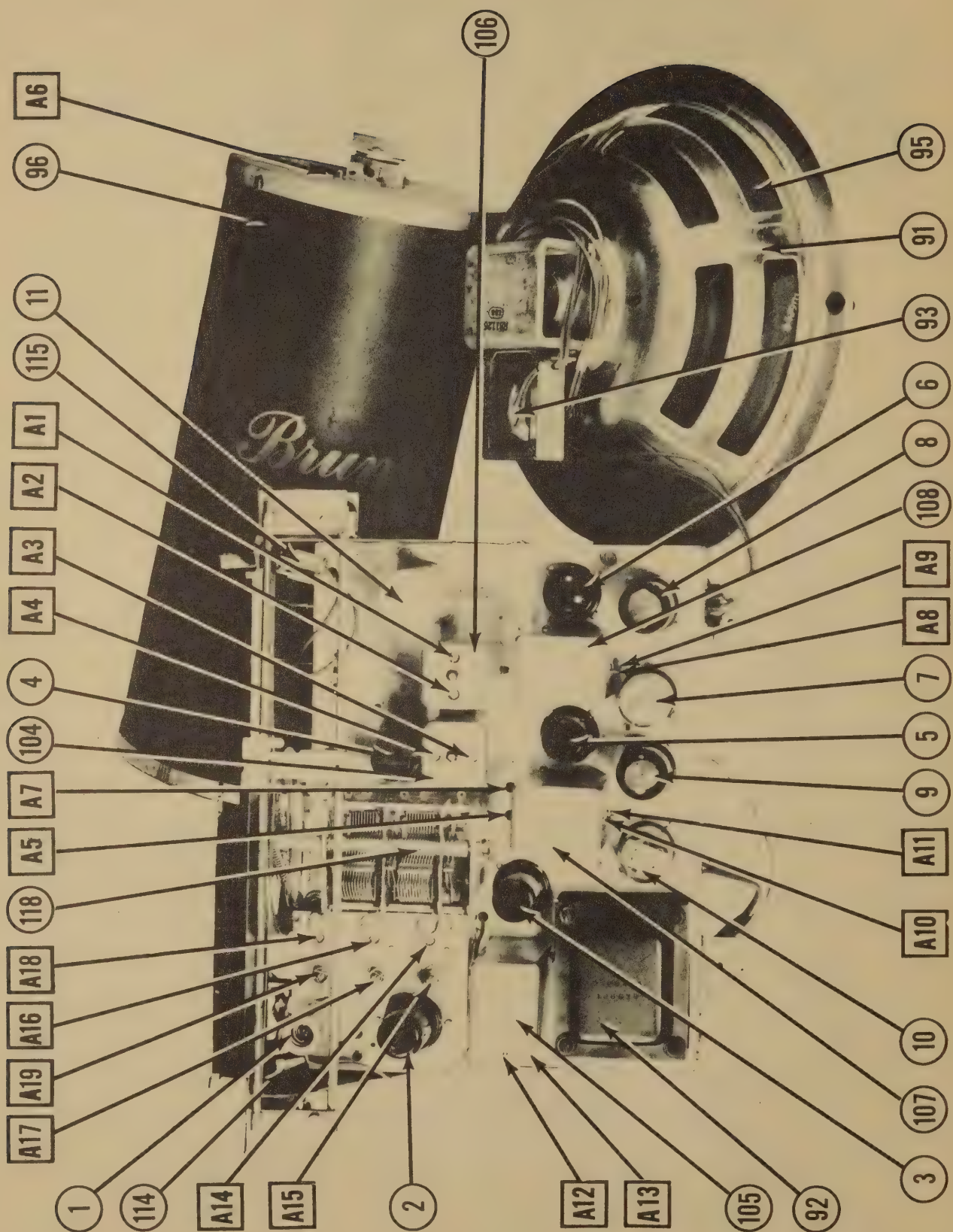
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 200MFD	High side to blue lead from loop ant. socket. Low side to chassis.	455KC	BC (center position)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2 200MFD	"	1600KC	"	1600KC	"	A5	" " " "
3 200MFD	"	1500KC	"	Tune for maximum output.	"	A6	" " " "
4 200MFD	"	600KC	"	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 and 4 until no further increase in output can be obtained

FOR FM ALIGNMENT SEE LAST PAGE OF THIS FOLDER.

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BRUNSWICK MODELS T-4000
"Buckingham," T-4000 1/2 "Buckingham,"
D-6876 "Plymouth." PAGE 3



PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		BRUNSWICK PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	FM RF Amp.	6A05	6A05	7BD	
2	FM Converter	6SE7Y	6SE7Y	8R	
3	AM RF-FM 1st IF	6SQ7	6SQ7	8BK	
4	AM Converter	6SA7	6SA7	8R	
5	AM IF-Det.-AVC-	6SF7	6SF7	7AZ	
6	FM 2nd IF	6H6	6H6	7Q	
7	1st Audio Amp.-	6SL7GT	6SL7GT	8BD	
8	Phase Inv.	6V6GT	6V6GT	7AC	
9	Power Output	6V6GT	6V6GT	7AC	
10	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		BRUNSWICK PART No.	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT		MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.		CORNELL-DUBILIER PART No.
11A	30	450	25214	FP428	DY-403	EL-424	AF444J4A	UP9DU53	Filter
11B	30	450							"
11C	20	450							"
11D	20	25				UT-8			"
12	4	50	25136	TC40	N-4-150	TA-55	PRS150-4	BR550	Output Cathode Bypass
13	4		25136	TC40	N-4-150	TA-55	PRS150-4	BR550	Ratio Det. Bias Net.
14	.005	600	25183	TP408	S-6-005	TC-25	684-005	D76D5	Line Filter
15	.003	600	25184	TP406	S-6-003	TC-23	684-003	D76D3	Tone Compensation
16	.002	600	25185	TP405	S-6-002	TC-22	684-002	D76D2	"
17	.01	400	25194	TP421	S-4-01	TC-11	484-01	D74S1	Audio Coupling
18	.01	400	25194	TP421	S-4-01	TC-11	484-01	D74S1	"
19	.01	400	25194	TP421	S-4-01	TC-11	484-01	D74S1	"
20	.02	600		TP412	S-6-02	TC-12	684-02	D76S2	"
21	.003	600	25184	TP408	S-6-003	TC-23	684-003	D76D3	Output Plate Bypass
22	.003	600	25184	TP408	S-6-003	TC-23	684-003	D76D3	Audio Coupling
23	.1	200		TP428	S-4-1	TC-1	484-1	D74P1	AVC Filter
24	.01	600	25215	TP410	S-6-01	TC-11	684-01	D76S1	IF Decoupling
25	.01	600	25194	TP410	S-6-01	TC-11	684-01	D76S1	AVC Filter
26	.05	200	25196	TP426	S-4-05	TC-15	484-05	D74S5	AM Conv. Screen Bypass
27	.005	200	25183	TP408	S-6-005	TC-25	684-005	D74S5	AVC Filter
28	.05	200	25196	TP426	S-4-05	TC-15	484-05	D74S5	AM Conv. Screen Bypass
29	4000	300	25271	MC463	MM-5-24	LFM-24	1467-004	LDS4	De-emphasis.
30	100	500	25188	MC235	MO-5-31	LFM-31	1468-0001	SW5T1	RF Filter
31	100	500	25188	MC235	MO-5-31	LFM-31	1468-0001	SW5T1	"
32	4		25327	MC235	MO-5-31	LFM-31	1468-0001	SW5T1	IF Coupling
33	100	500	25188	MC235	MO-5-31	LFM-31	1468-0001	SW5T1	IF Diode Load Cap.
34	100	500	25188	MC235	MO-5-31	LFM-31	1468-0001	SW5T1	"
35	4000	300	25271	MC463	MM-5-24	LFM-24	1467-004	LDS4	IF Screen Bypass
36	30		25329	MC456	MM-5-215	LFM-215	1467-0015	LW5D15	IF Plate Decoupl.
37	1500		25273	MC456	MM-5-215	LFM-215	1467-0015	LW5D15	"
38	4000	300	25273	MC456	MM-5-24	LFM-24	1467-004	LDS4	IF Screen Bypass
39	1500		25273	MC456	MM-5-215	LFM-215	1467-0015	LW5D15	IF Screen Decoupl.
40	1500		25273	MC456	MM-5-215	LFM-215	1467-0015	LW5D15	AVC Filter
41	1500		25273	MC456	MM-5-215	LFM-215	1467-0015	LW5D15	AVC Filter
42	1500		25273	MC456	MM-5-215	LFM-215	1467-0015	LW5D15	FM Conv. Plate Decoupl.
43	30		25329	MC456	MM-5-215	LFM-215	1467-0015	LW5D15	FM Conv. Screen Bypass
44	30		25329	MC456	MM-5-215	LFM-215	1467-0015	LW5D15	FM Osc. Grid Cap.
45	1500		25273	MC456	MM-5-215	LFM-215	1467-0015	LW5D15	FM RF Coupling
46	60		25333	MC456	MM-5-215	LFM-215	1467-0015	LW5D15	FM RF Screen Bypass
47	1500		25273	MC456	MM-5-215	LFM-215	1467-0015	LW5D15	AVC Filter
48	47	500	25193	MC235	MO-5-447	LFM-45	1468-0005	SW5Q5	AM Osc. Grid Cap.
49	1500		25273	MC456	MM-5-215	LFM-215	1467-0015	LW5D15	FM F. Plate Decoupl.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		BRUNSWICK PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
50	3 Meg.	78120	UM165	D13-140	AM-67-Z	Volume Control and Switch
51A	3 Meg.	78072	SS25	E	KSS-3	Tone Control
51B	Start	Not Req.				Attach 51A per instructions

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	BRUNSWICK PART No.	MEISSNER PART No.
96	Loop Ant.	65Ω	.7Ω	3c335	
97	FM Ant.			11325	
98	Ant. Load.				
99	Coil		1-5Ω	33845	
100	FM Ant. Coil		0Ω	33690	
101	Wave Trap		0Ω	33691	
102	BC Osc. Coil		Inf.	33484	
103	FM Osc. Coil	1Ω	5-5Ω	33692	14-1040
104	FM Input IF		9Ω	33681	
105	AM 1st IF	.5Ω	.5Ω	33683	16-5740
106	AM Output IF	9Ω	9Ω	33682	
107	FM 2nd IF	.5Ω	.5Ω	33684	16-5742
108	Ratio Det.	2Ω	0Ω	33685	
109	RF Choke	.1Ω	.1Ω	33661	
110	RF Choke	.1Ω	.1Ω	33661	
111	RF Choke	.1Ω	.1Ω	33661	
112	RF Choke	.1Ω	.1Ω	33661	
113	RF Choke	.1Ω	.1Ω	53471	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	BRUNSWICK PART No.	
114	Bayonet	6-8	0.25A	Blue	42135	Type 44
115						

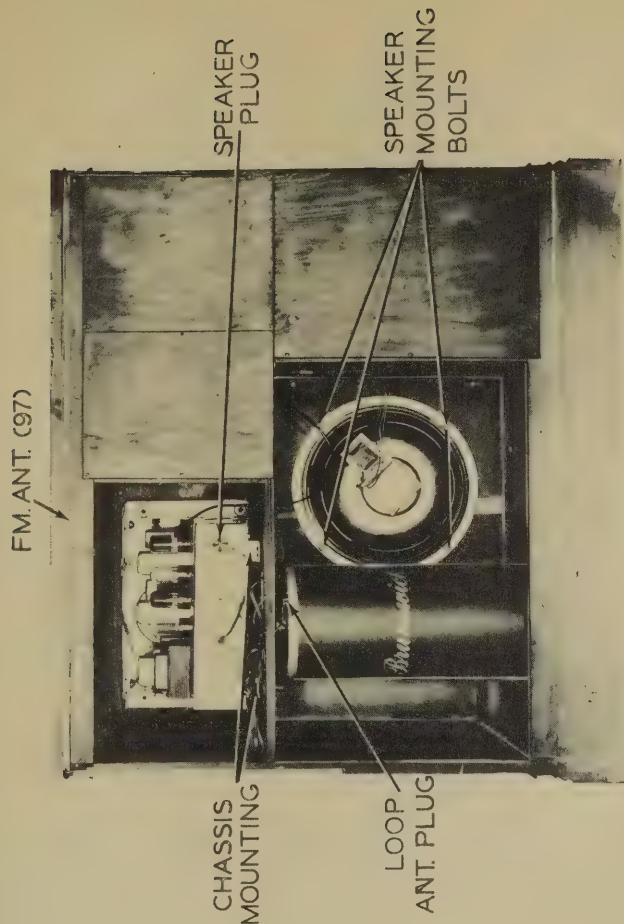
MISCELLANEOUS

ITEM No.	PART NAME	BRUNSWICK PART No.	NOTES
117	Switch	90214	Band-Phono
118	Tuning Cap.	26237	AM (13-465 MTF, 13-465 MTF)
A5	Trimmer Strip	26350	BC Osc. Adj.
A7	Glass Dial	31385	BC Osc. Padder
	Dial Pointer	11257	
	Knob	67444	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	BRUNSWICK PART No.	IRC PART No.	
52	220K Ω	1/2	77216	BTS-220K	Red-Red-Yl. AM Converter Grid
53	22K Ω	1/2	77266	BTS-22K	Red-Red-Or. AM Oscillator Grid
54	10K Ω	1/2	77013	BTS-10K	Br.-Blk.-Or. AM Converter Screen Dropping
55	100K Ω	1/2	77214	BTS-100K	Br.-Blk.-Yl. AVC Network
56	100K Ω	1/2	77214	BTS-100K	Br.-Blk.-Yl. FM-RF Grid
57	100K Ω	1/2	77262	BTS-100K	Br.-Blk.-Red FM-RF Plate Decoupling
58	15K Ω	1/2	77265	BTS-15K	Br.-Grn.-Or. FM-RF Screen Dropping
59	10K Ω	1/2	77212	BTS-10K	Br.-Blk.-Or. FM-RF Coil Shunt
60	22K Ω	1/2	77266	BTS-22K	Red-Red-Or. FM Oscillator Grid
61	10K Ω	1/2	77013	BTS-10K	Br.-Blk.-Or. FM Converter Screen Dropping
62	100K Ω	1/2	77262	BTS-100K	Br.-Blk.-Red FM Converter Plate Decoupling
63	100K Ω	1/2	77214	BTS-100K	Br.-Blk.-Yl. AVC Network
64	4.7 Meg.	1/2	77272	BTS-4.7 Meg.	Yl.-Vi.-Grn. " "
65	33K Ω	1/2	77267	BTS-33K	Or.-Or.-Or. IF Screen Dropping
66	100K Ω	1/2	77262	BTS-100K	Br.-Blk.-Red IF Screen Decoupling
67	470K Ω	1/2	77211	BTS-470K	Yl.-Vi.-Red IF Plate Decoupling
68	100K Ω	1/2	77262	BTS-100K	Br.-Blk.-Red IF Plate Decoupling
69	100K Ω	1/2	77267	BTS-100K	Or.-Or.-Or. IF Screen Dropping
70	33K Ω	1/2	77262	BTS-33K	Br.-Blk.-Red IF Decoupling
71	100K Ω	1/2	77262	BTS-100K	Red-Red-Or. De-emphasis
72	22K Ω	1/2	77266	BTS-22K	Or.-Or.-Or. Ratio Detector Bias Network
73	33K Ω	1/2	77267	BTS-33K	Or.-Or.-Or. De-emphasis
74	33K Ω	1/2	77267	BTS-33K	Yl.-Vi.-Or. Diode RF Filter
75	47K Ω	1/2	77213	BTS-47K	Yl.-Vi.-Or. Diode Lead
76	47K Ω	1/2	77217	BTS-47K	Yl.-Vi.-Yl. Diode Lead
77	47K Ω	1/2	77217	BTS-47K	Br.-Blk.-Grn. AVC Network
78	1 Meg.	1/2	77218	BTS-1 Meg.	Red-Red-Yl. Series Phono
79	220K Ω	1/2	77216	BTS-220K	Red-Red-Yl. Tone Compensation
80	220K Ω	1/2	77216	BTS-220K	Br.-Blk.-Blue AF Grid
81	10 Meg.	1/2	77274	BTS-10 Meg.	Yl.-Vi.-Yl. AF Plate Load
82	470K Ω	1/2	77217	BTS-470K	Yl.-Vi.-Yl. Phase Inverter Plate Load
83	470K Ω	1/2	77274	BTS-470K	Br.-Blk.-Blue Phase Inverter Grid
84	10 Meg.	1/2	77274	BTS-10 Meg.	Br.-Blk.-Grn. AVC Network
85	1 Meg.	1/2	77218	BTS-1 Meg.	Red-Red-Yl. Output Grid
86	220K Ω	1/2	77216	BTS-220K	Red-Red-Yl. " "
87	220K Ω	1/2	77216	BTS-220K	Red-Red-Yl. " "
88	220K Ω	1/2	77216	BTS-220K	Red-Red-Yl. " "
89	270 Ω	2	77189	BT-2-270	Red-Vi.-Br. Output Cathode
90	100K Ω	2	77262	BT-2-100K	Br.-Blk.-Red Filter
91	270K Ω	4.7	77243	AB-2500	" "



TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA		MERIT PART No.
	PRI.	SEC.	BRUNSWICK PART No.	THORDARSON PART No.	
92	117V AC @ .64A	5.0V AC @ 2.0A	94204	P-6120	P-2952

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	BRUNSWICK PART No.	THORDARSON PART No.	
93	1500 Ω CT	240 Ω CT	94156	T22887	Replace output transformer to match 8 Ω voice coil.

SPEAKER

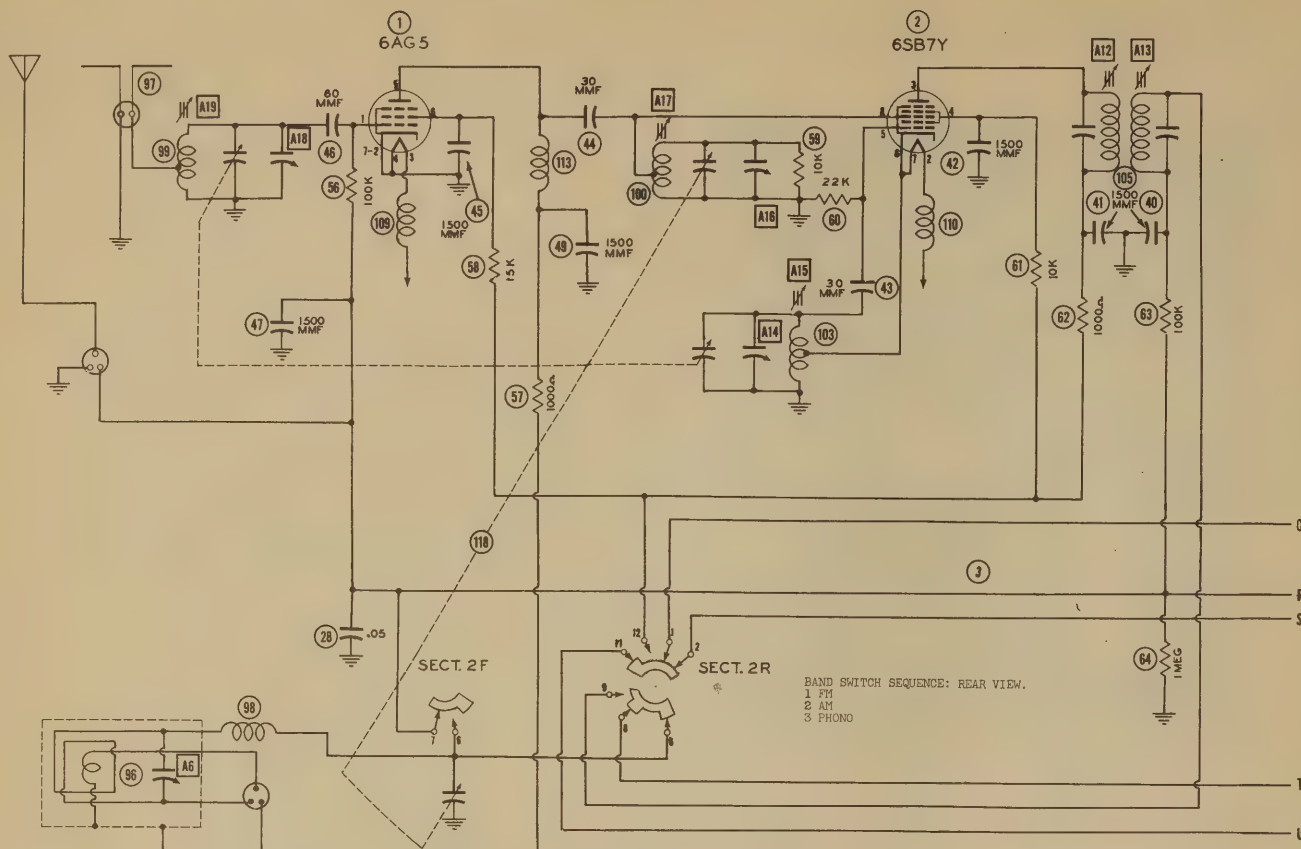
ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD PH	VC DIA.	BRUNSWICK PART No.	JENSEN PART No.	
94	4.13	1"	81126	ST-101	Replace output transformer to match 8 Ω voice coil.
95	11-3/4"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove speaker plug from chassis.
3. Remove phono-motor plug from socket under phono motor.
4. Remove phono-pickup plug from socket under record changer.
5. Remove two plugs from loop antenna.
6. Remove four screws holding loop antenna in cabinet. Remove loop from cabinet.
7. Remove FM antenna plug from chassis.
8. Remove four screws holding chassis in cabinet. Remove chassis from cabinet.
9. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.

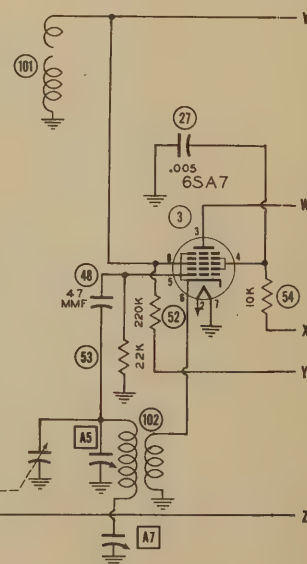
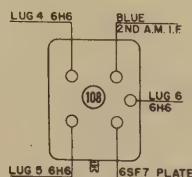
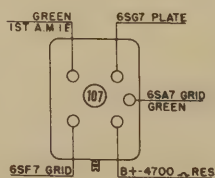
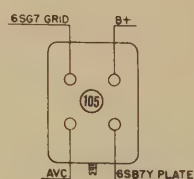
PROPERTY OF
F. BLANKENSH
3924 MEADE ST.
DENVER, COLORADO

"Buckingham," T-4000½ "Buckingham,"
D-6876 "Plymouth." PAGE 5



IF = 455KC (AM)
10.7MC (FM)

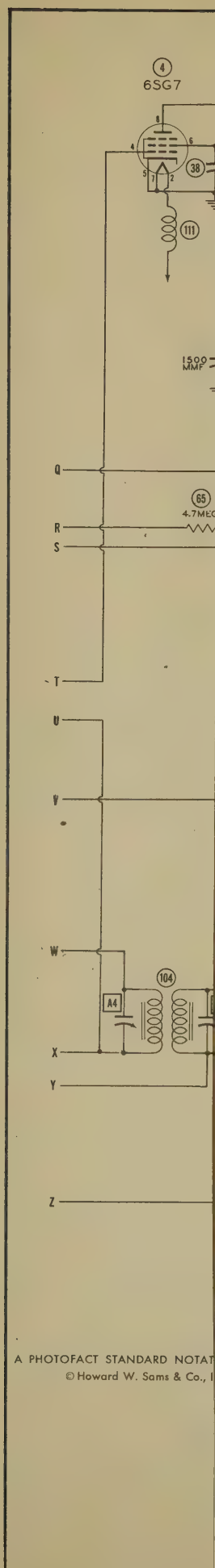
ANT. TO CONV. GRID	14X	600KC
CONV. GAIN	15X	IN 600KC OUT 455KC
1st IF TRANS.	.3X	455KC
IF TUBE	120X	455KC
2nd IF TRANS.	.75X	455KC
AUDIO	40X	400 \sim
OUTPUT	18X	400 \sim



A PHOTOFAC STANDARD NOTATION SCHEMATIC
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4719-5

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



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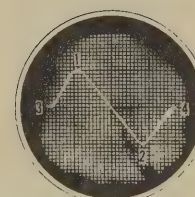
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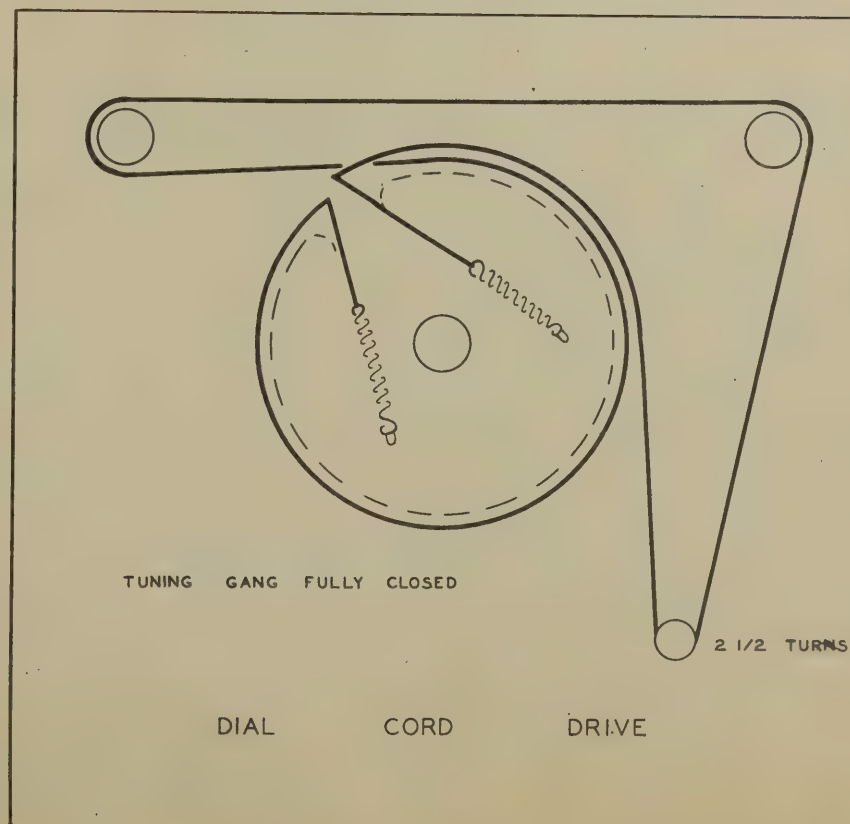
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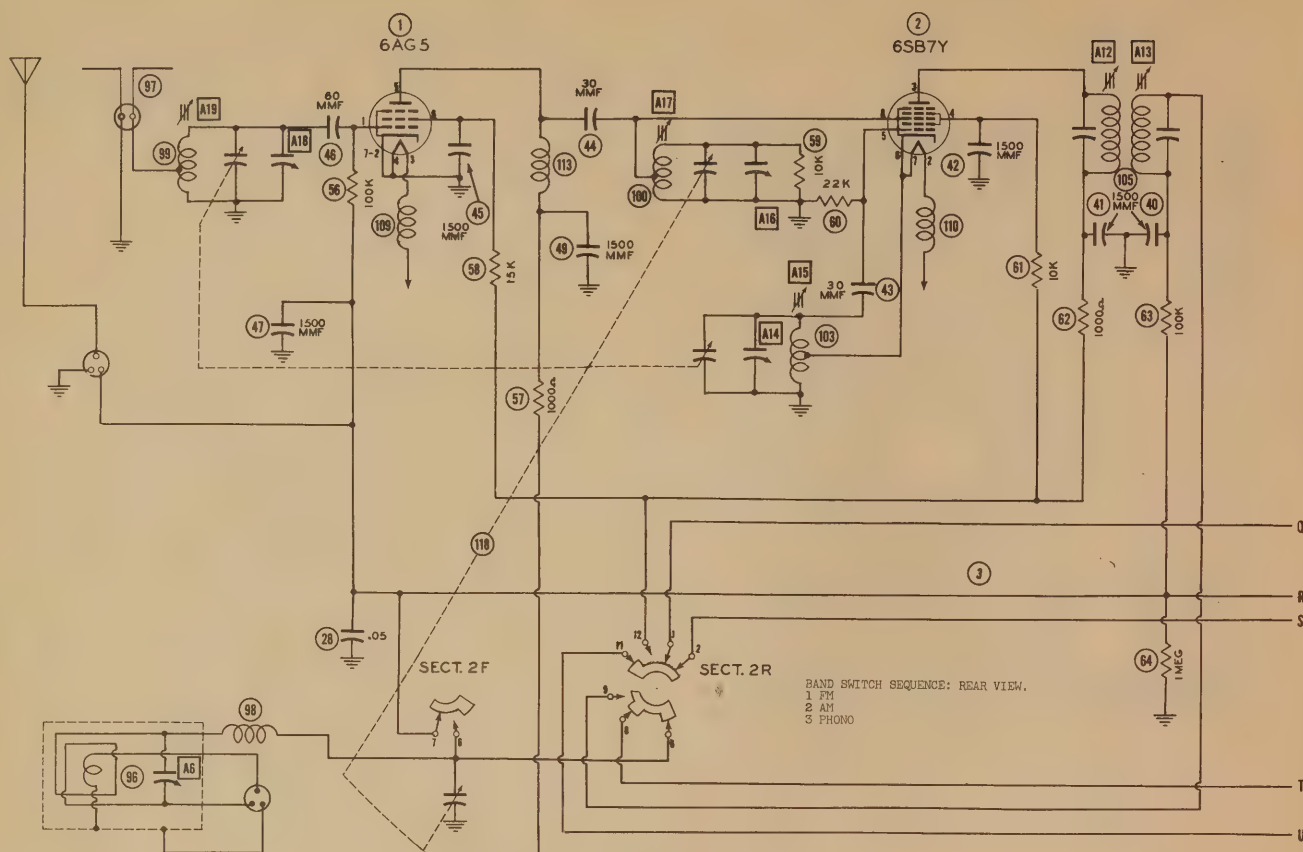
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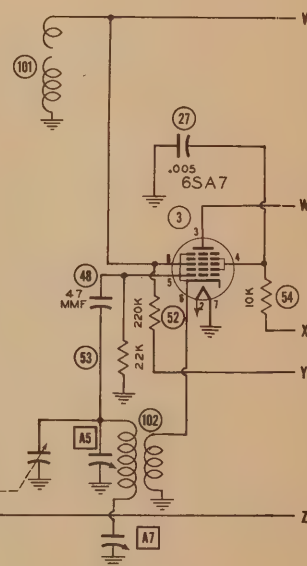
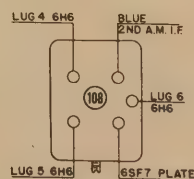
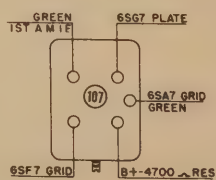
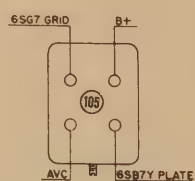


BRUNSWICK MODELS T-4000
"Buckingham," T-4000 1/2 "Buckingham,"
D-6876 "Plymouth." PAGE 9



IF = 455KC (AM)
10.7MC (FM)

ANT. TO CONV. GRID	14X	600KC
CONV. GAIN	15X	IN 600KC OUT 455KC
1st IF TRANS.	.5X	455KC
IF TUBE	120X	455KC
2nd IF TRANS.	.75X	455KC
AUDIO	40X	400~
OUTPUT	18X	400~



A PHOTOFAC STANDARD NOTATION SCHEMATIC
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4719-5

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6AG5	-6VDC	OV.	6.3VAC	OV.	160VDC	135VDC	OV.	-
2	6BB7Y	OV.	6.3VAC	150VDC	80VDC	-5VDC§	OV.	OV.	OV.
3	6BG7	OV.	6.3VAC	OV.	-6VDC	OV.	90VDC	OV.	130VDC
4	6BK7	OV.	OV.	165VDC	90VDC	-7.4VDC§	OV.	6.3VAC	-4VDC
5	6BF7	OV.	-5VDC	OV.	75VDC	-6VDC	155VDC	OV.	6.3VAC
6	6H6	OV.	OV.	-8.9VDC	-8.4VDC	5.7VDC	-3.9VDC	6.3VAC	10VDC
7	6BL7GT	-8VDC	55VDC	OV.	-8VDC	55VDC	OV.	6.3VAC	OV.
8	6V6GT	OV.	OV.	275VDC	195VDC	OV.	OV.	6.3VAC	12VDC
9	6V6GT	OV.	OV.	275VDC	195VDC	OV.	OV.	6.3VAC	12VDC
10	6V6GT	OV.	OV.	OV.	270VAC	OV.	270VAC	OV.	280VDC

7 VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

STAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 1\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

Item	Tube	RESISTANCE READINGS									
		Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8		
1	6AG5	90KΩ	Ω	.2Ω	Ω	65KΩ	80KΩ	Ω	-		
2	6BF7Y	Ω	.2Ω	65KΩ	75KΩ	22KΩ	Ω	Ω	Ω		
3	6BF7	Ω	.2Ω	Ω	85KΩ	Ω	100KΩ	Ω	70KΩ		
4	6SA7	Ω	Ω	65KΩ	75KΩ	22KΩ	.7Ω	.1Ω	1.3 Meg.		
5	6SF7	Ω	1.2 Meg.	Ω	95KΩ	420KΩ	60KΩ	Ω	.2Ω		
6	6H6	Ω	Ω	25KΩ	INF.	INF.	INF.	.1Ω	30KΩ		
7	6SL7GT	10 Meg.	550KΩ	Ω	10 Meg.	530KΩ	Ω	.1Ω	Ω		
8	6V6GT	Ω	Ω	60KΩ	60KΩ	440KΩ	21.5KΩ	.1Ω	230Ω		
9	6V6GT	Ω	Ω	60KΩ	60KΩ	440KΩ	21.5KΩ	.1Ω	230Ω		
10	5X3GT	INF.	60KΩ	INF.	9Ω	INF.	100Ω	F.	60KΩ		

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A



B

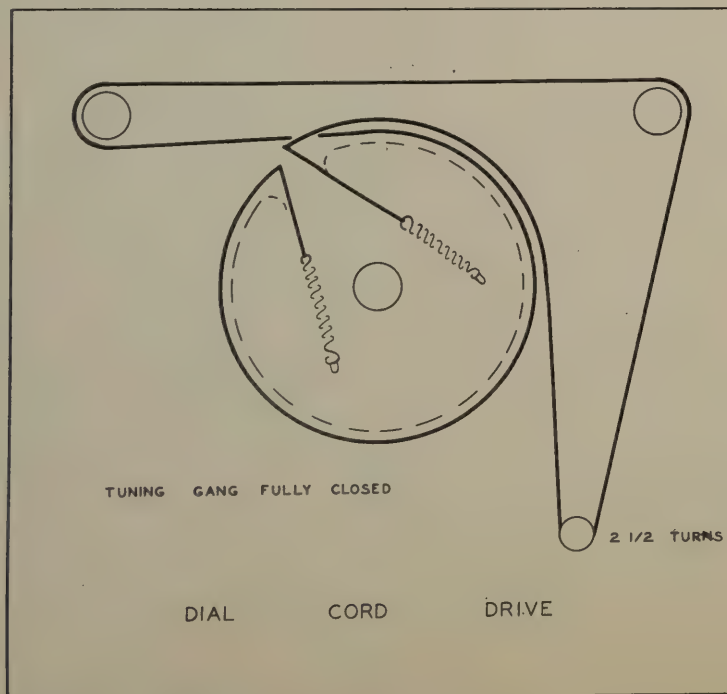


C



D

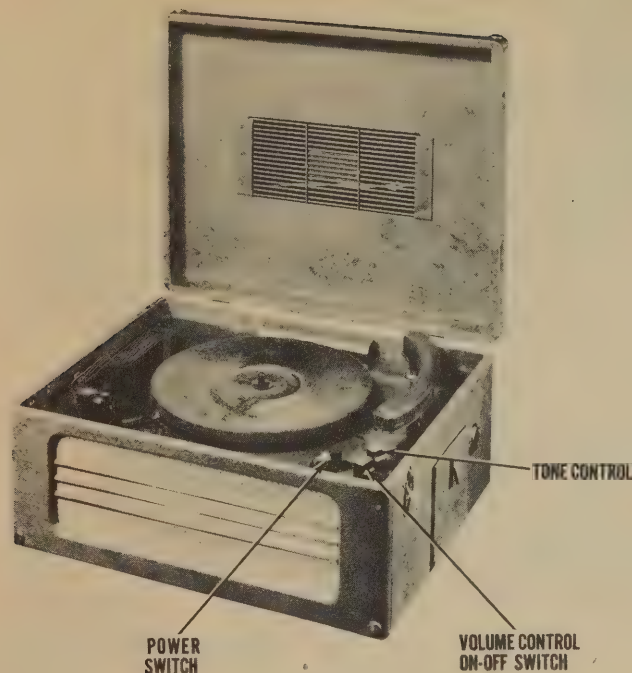
BRUNSWICK MODELS T-4000
"Buckingham," T-4000 1/2 "Buckingham,"
D-6876 "Plymouth." PAGE 9



FM ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE							
Use 60V synchronized sweep voltage from signal generator for horizontal deflection. The lead carrying this voltage should be shielded and of low total capacity. The scope patterns to be strived for in alignment were obtained under ideal conditions. They should be duplicated as nearly as possible.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5 3300MCF	High side to Pin 2 (grid) of 6SG7. Low side to chassis.	10.7MC (freq. modulated 300KC sweep 60 modulation)	FM (fully counter-clockwise)	Tuning cap. fully open.	Connect vertical amplifier to Point A. Ground to chassis.	A8	Disconnect 4 MFD. capacitor from Point A. Remove 6SL7 Tube from socket. Set volume and tone control completely clockwise. Preset A9 by turning it out as far as possible. Adjust A8 for pattern of Figure A.
6 3300MCF	"	"	"	"	"	A9	Adjust for pattern of Figure B making certain that both sides of the curve are symmetrical.
7 3300MCF	High side to Pin 4 (grid) 6SG7. Low side to chassis.	"	"	"	"	A10, A11	Adjust for maximum amplitude and symmetry as in Figure A.
8 3300MCF	High side to Pin 8 (grid) 6SB7Y. Low side to chassis.	"	"	"	"	A12, A13	Adjust A12 for maximum amplitude and symmetry as in Figure A. Adjust A13 for pattern of Fig. C making both sides as symmetrical as possible.
9 3300MCF	"	"	"	"	Vertical amplifier to Point B. Low side to chassis.	A8, A9	Reconnect 4 MFD. capacitor to Point A. Pattern should be that of Figure D. If it is not, adjust A8 and A9 for maximum amplitude and straightness of pattern from "1" to "2" with a horizontal line from "3" to "4" crossing center of diagonal line. Replace 6SL7 tube in socket.
OUTPUT METER							
10 300R carbon res.	High side to ungrounded terminal of FM ant. socket. Low side to chassis.	107.9MC (freq. modulated 300KC sweep 400 modulation)	FM (fully counter-clockwise)	Channel 300	Across voice coil	A14	Adjust for maximum output.
11 "	"	87.9MC (freq. mod.)	"	Channel 200	"	A15	Adjust for maximum output. Repeat Steps 10 and 11 until no further improvement can be made.
12 "	"	105MC (freq. mod.)	"	Tune for maximum output. (Approx. Channel 285)	"	A16	Adjust for maximum output.
13 "	"	92MC (freq. mod.)	"	Tune for maximum output. (Approx. Channel 220)	"	A17	Adjust for maximum output. Repeat Steps 12 & 13 until no further improvement can be made.
14 "	"	105MC (freq. mod.)	"	Tune for maximum output. (Approx. Channel 285)	"	A18	Adjust for maximum output.
15 "	"	92MC (freq. mod.)	"	Tune for maximum output. (Approx. Channel 220)	"	A19	Adjust for maximum output. Repeat Steps 14 and 15 until no further improvement can be made.

FM ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5 .05 MFD	High side to Pin 4 (grid) 6SG7. Low side to chassis.	10.7MC (unmodulated)	FM	Tuning cap. fully open.	DC probe of VTVM to Point B. Common lead to chassis.	A8, A9	Preset A9 by turning it out as far as possible. Adjust A8 for maximum deflection (negative). Then adjust A9 for zero deflection. (as A9 is adjusted voltage will go up slowly then decrease rapidly. Adjust until voltage decreases to zero)
6 .05 MFD	"	"	"	"	DC probe of VTVM to point A. Common lead to chassis.	A10, A11	Preset A11 by turning it out as far as possible. Adjust A10 for maximum deflection. Then adjust A11 for maximum deflection.
7 .05 MFD	High side to Pin 8 (grid) of 6SB7Y. Low side to chassis.	"	"	"	"	A12, A13	Preset A13 by turning it out as far as possible. Adjust A12 for maximum deflection. Then adjust A13 for maximum deflection.
8 300R carbon res.	High side to ungrounded terminal of FM ant. socket. Low side to chassis.	87.5MC	"	Tuning cap. fully closed	"	A15	Adjust for maximum deflection.
9 "	"	108.5MC	"	Tuning cap. fully open.	"	A14	Adjust for maximum deflection. Repeat Steps 8 and 9 until no further improvement can be made.
10 "	"	92MC	"	Tune for maximum reading.	"	A17, A18	Adjust for maximum deflection.
11 "	"	105MC	"	Tune for maximum reading.	"	A16, A19	Adjust for maximum deflection. Repeat Steps 10 and 11 until no further improvement can be made.

FOR AM ALIGNMENT SEE FRONT PAGE OF THIS FOLDER.



CAPITOL MODEL U-24

TRADE NAME	Capitol, Model U-24
MANUFACTURER	Capitol Distributing Corp., Sunset & Vine, Hollywood, Calif.
TYPE SET	Three Power Portable Record Player with Amplifier and Speaker
TUBES (FOUR)	Types, 1S5 AF Amp., 3Q4 Power Output, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC or 1.5 Volts "A" Supply and 90 Volts "B" Supply
RATING	.220 Amp. @ 117 Volts AC or 144MA @ 1.5V DC and 23MA @ 90V DC

#TAKEN IN BATTERY POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1S5	0V.	0V.	0V.	23VDC	23VDC	0V.	1.2VDC
# 2	3Q4	1.4VDC	68VDC	0V.	83VDC	0V.	68VDC	1.4VDC
3	50B5	0V.	6.2VDC	32VAC	87VAC	88VDC	100VDC	0V.
4	35W4	0V.	0V.	87VAC	117VAC	117VAC	117VAC	137VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1S5	0Ω	INF.	INF.	420KΩ	420KΩ	540KΩ	*
# 2	3Q4	*	INF.	600KΩ	INF.	0Ω	INF.	*
3	50B5	600KΩ	120Ω	200Ω	270Ω	90KΩ	90KΩ	600KΩ
4	35W4	INF.	INF.	270Ω	300Ω	290Ω	290Ω	90KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

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DATE 12/47 SET #29 FOLDER #4719-6

PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

Capitol Model U-24
Battery Operated

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		CAPITOL PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	AF Amp.	1S5	1S5	6AU	
2	Power Output	3Q4	3Q4	7BA	
3	Rectifier	50B5	50B5	7BZ	
4	Rectifier	35W4	35W4	5B9	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	CAPITOL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.		CORNEILL-DUBILIER PART No.
5A	40	150		FP304	DY-304	EL-24	FAF88D	UP4CJ65	■ Filter
5B	20	150							▲ Cathode Bypass
6	100	12							Line Filter
7	.002	600		TF428	MPH-4-1	UHC-112	LPR25-100	DT4F1	Output Plate Bypass
8	.05	400		TF405	S-6-002	TC-1	484-1	DT6D2	Audio Coupling
9	.005	400		TP426	S-4-05	TC-22	684-002	DT4S5	Tone Comp.
10	.1	400		TP408	S-6-005	TC-15	684-005	DT6D5	Phono Coupling
11	.1	400		TP428	S-4-1	TC-1	484-1	DT4F1	Line Isolation
12	470	500		MC245	MO-5-35	LFV-35	1488-0005	5W5T5	Tone Comp.

CONTROLS

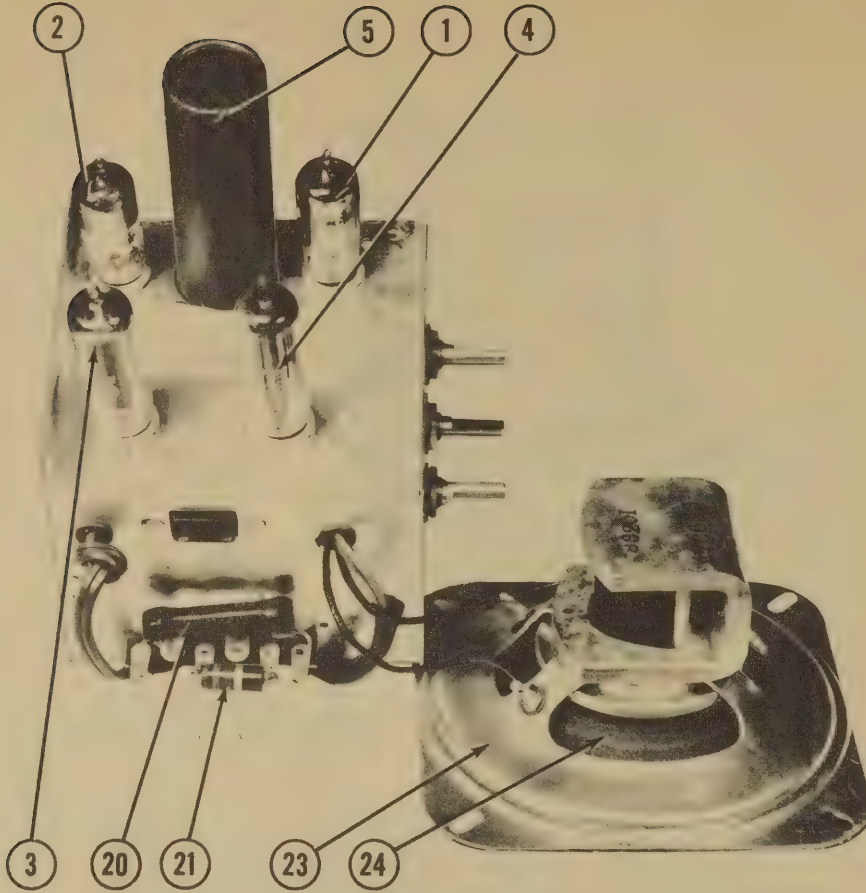
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST-ANCE	WATTS	CAPITOL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
13A	500KΩ	½		MR48	D13-133	M-60-Z	Volume Control
13B	Switch			Not Req.	A	Not Req.	Attach to 13A per instructions
14A	3 Meg.	½		MR57	D13-140	M-67-Z	Tone Control
14B	Switch			Not Req.	A	Not Req.	Attach to 14A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	CAPITOL PART No.	IEC PART No.	
15	10 Meg.	1		BTS-10 Meg.	Br.-Blk.-Blue Tone Compensation
16	330K	1		BTS-330K	Or.-Or.-Yl. AF Plate Load
17	680K	1		BTS-680K	Blue-Gray-Yl. Output Grid
18	390	1		BW-1-390	Or.-White-Br. Bias
19	120	1		BW-1-120	Br.-Red-Br. Output Cathode
20	200	1		AB-200	Line Dropping
21	690	2		BT-2-680	Blue-Gray-Br. Filter

TRANSFORMER (OUTPUT)

ITEM No.	IMPEDANCE	RATING			REPLACEMENT DATA			INSTALLATION NOTES
		PRI.	SEC.	DC RES.	CAPITOL PART No.	STANCOR PART No.	THORAR'N PART No.	
22	3600Ω	3.5Ω	600Ω	.6Ω				
	2500Ω	tapped	2500Ω					



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA	INSTALLATION NOTES
		CAPITOL PART No.	JENSEN PART No.
23	FIELD BY 3 50		ST-107*
24	CONC DIA. VC DIA. 5 1/2		Mod. P5-V
		CONE HAS SPECIAL ADJUSTMENT FEATURE—ORDER FROM MANUFACTURER.	

BATTERIES

ITEM No.	VOLTAGE	CAPITOL PART No.	EVEREADY		INSTALLATION NOTES
			"A"	"B"	
25	1 1/2 "A"		#745		
26	90V "B"			#482	2 Used in series

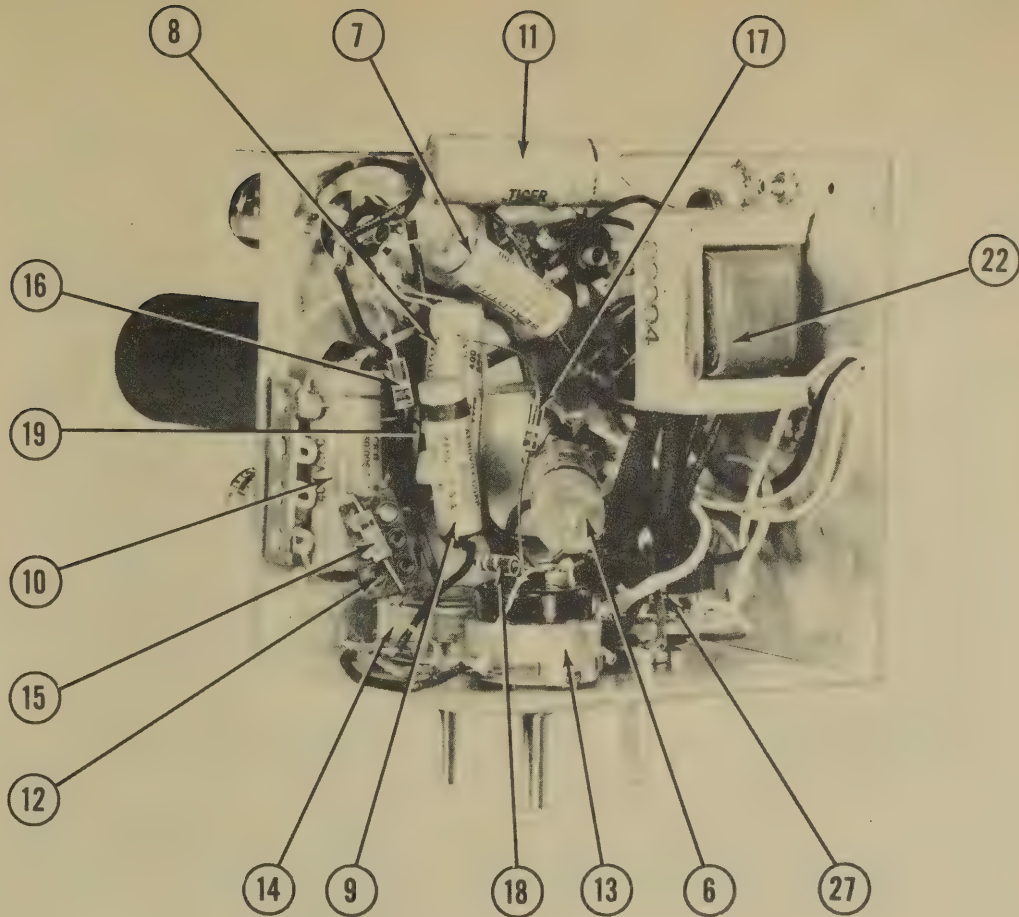
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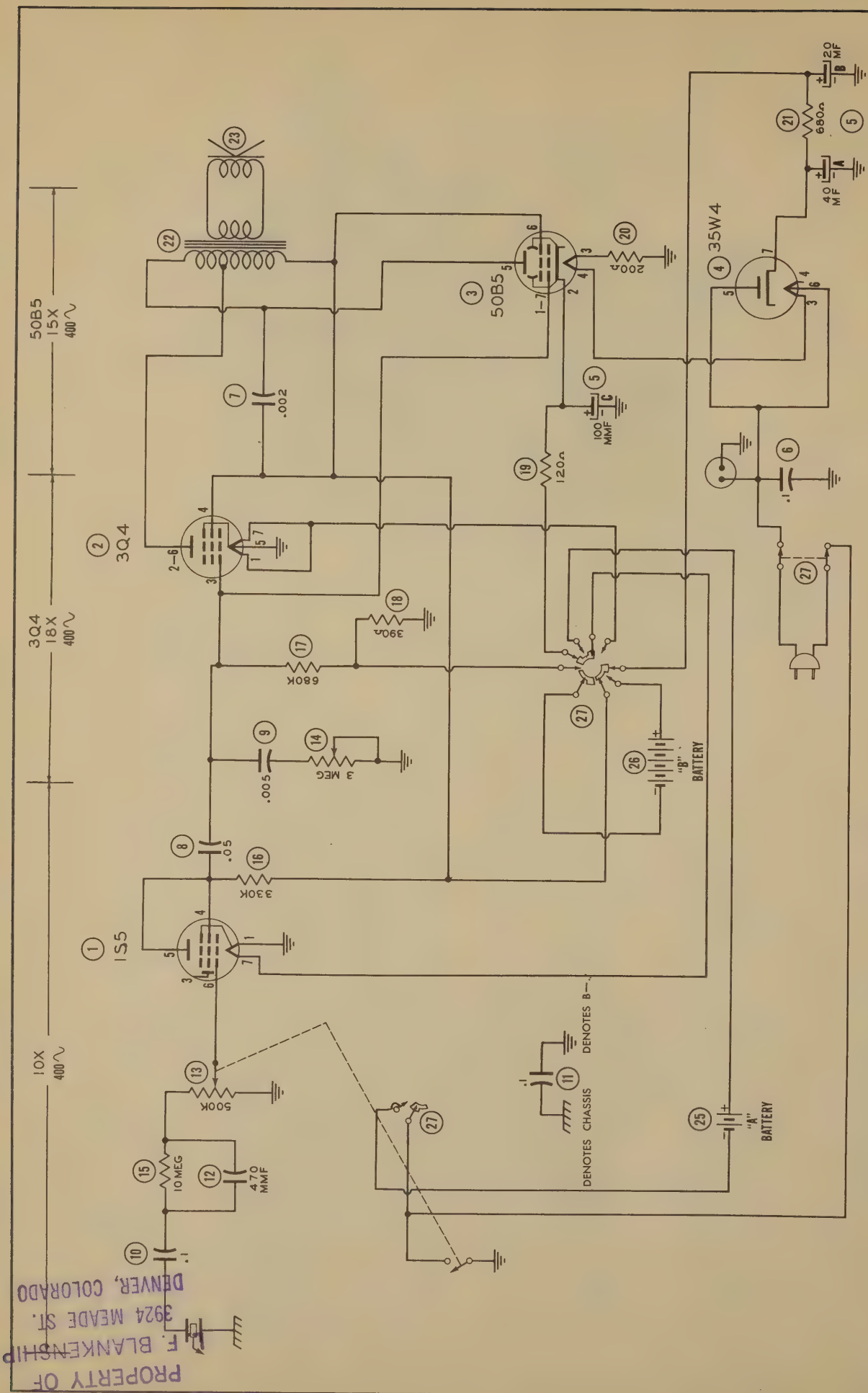
ITEM No.	PART NAME	CAPITOL PART No.	NOTES
27	Switch		AC-DC-Batt.

DISASSEMBLY INSTRUCTIONS

1. Remove two push-on type control knobs.
2. Loosen set screw and remove knob on battery-AC-DC switch shaft.
3. Remove seven wood screws holding phono mounting board in cabinet.
4. Remove phono-motor plug from chassis.
5. Remove three wood screws holding left hand phono-motor board in cabinet. Remove from cabinet.
6. Remove plugs from batteries.
7. Remove four wood screws holding speaker in cabinet.
8. Remove two wood screws holding chassis in cabinet. Remove chassis and speaker from cabinet.
9. Unsolder phono-pickup lead from chassis.

CHASSIS—BOTTOM VIEW

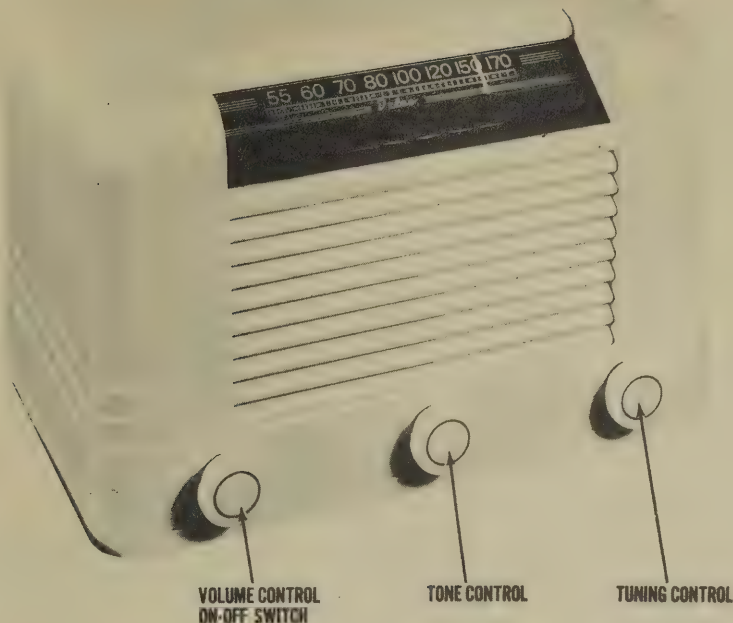




THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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4719-6



DELCO MODEL R-1236

TRADE NAME	Delco, Models R-1236, R-1237		
SUPPLIER	United Motors Service, Div. of G.M.C. General Motors Bldg., Detroit 2, Mich.		
TYPE SET	AC-DC Operated Superheterodyne Receiver with Pushbutton Tuning		
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7 Converter, 12SK7GT IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.		
POWER SUPPLY	105-125 Volts AC-DC		
TUNING RANGE—BROADCAST	540-1720KC	RATING	.240 Amp. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set the pointer over the line directly under the number "55". Use isolation transformer if available. If not, connect a .1 Mfd capacitor in series with low side of signal gen. & B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .02 MFD.	High side to Pin 8 (grid) 12SA7. Low side to B-.	456KC	Tuning cap. fully open.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2 200MMFD	High side to ext. ant. lead. Low side to chassis.	1720KC	"	"	A5	Adjust for maximum output.
3 200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

PUSHBUTTON ADJUSTMENTS

1. Turn receiver on and allow it to warm up for about 15 minutes.
2. Remove buttons and loosen the set screws under each button.
3. Depress the first pushbutton shaft desired to be set up, as far as possible. While keeping the shaft firmly depressed manually tune in desired station.
4. Release pushbutton shaft and tighten set screw firmly.
5. Check accuracy of setting by detuning with manual control then tuning with button. If setting is off, repeat Steps 2, 3 & 4.
6. To set up the remaining buttons follow the same procedure outlined above.

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DATE 12/47 SET #29 FOLDER #4719-7

PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

DELCO MODELS
R-1236, R-1237

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		DELCO PART No.	STANDARD REPLACEMENT		
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7	12SA7	8R	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC	12SQ7	12SQ7	8Q	
5	Power Output	35L6GT	35L6GT	74C	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	DELCO PART No.	MALLOY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNEILL-DUBILIER PART No.	
7A	40	150	1217026	2N511	DSB-2x40-150	TA-440	PRSA-150-40	BRD4415	Filter - Red
B	40	150							Blue
7A	40	150	1217022	2N511	DSB-2x40-150	TA-440	PRSA-150-40	BRD4415	Aluminate Filter
B	40	150							
8	.05	600	7230592	TP426	S-6-05	TC-15	684-05	U76S5	Rectifier Bypass
9	.02	400	1207902	TP412	S-4-02	TC-12	684-02	U74S2	Output Plate Bypass
10	.005	600	7230912	TP408	S-6-005	TC-25	684-005	U76D5	Audio Coupling
11	.002	600	7237954	TP405	S-6-002	TC-22	684-002	U76D2	Tone Compensation
12	.001	600	7239188	TP404	S-6-001	TC-21	684-001	U76D1	Audio Coupling
13	.01	400	7233608	TP421	S-4-01	TC-11	484-01	U74S1	Tone Compensation
14	.1	200	1207908	TP428	S-4-1	TC-1	484-1	U74P1	AVC Filter
15	.05	200	7230592	TP426	S-6-05	TC-15	684-05	U76S5	Art. Coupling
16	.2	400	7231594	TP429	S-4-2	TC-2	494-2	U74P2	Line Isolation
17	47	500	7233879	NC225	NO. 5-45	1FM-45	1468-000005	SW5Q5	AF Plate Bypass
18	24	500	7239153	NC220	NO. 5-425	KS-425	1468-000025	SW5Q25	Osc. Grid Cap. Cer.
19	150	500	7230893	NC236	NO. 5-315	1FM-315	1468-000015	SW5T15	HF Coupling
20	18	150	1216659						Fixed Trimmer Cer.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		DELCO PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
21A	500KΩ	1216505	MRT427	D13-133X	T-78	Volume Control
B	500KΩ	Not Req.	Not Req.	A	Not Req.	Attach to 21A per instructions
C	Switch			M26	SK-A	

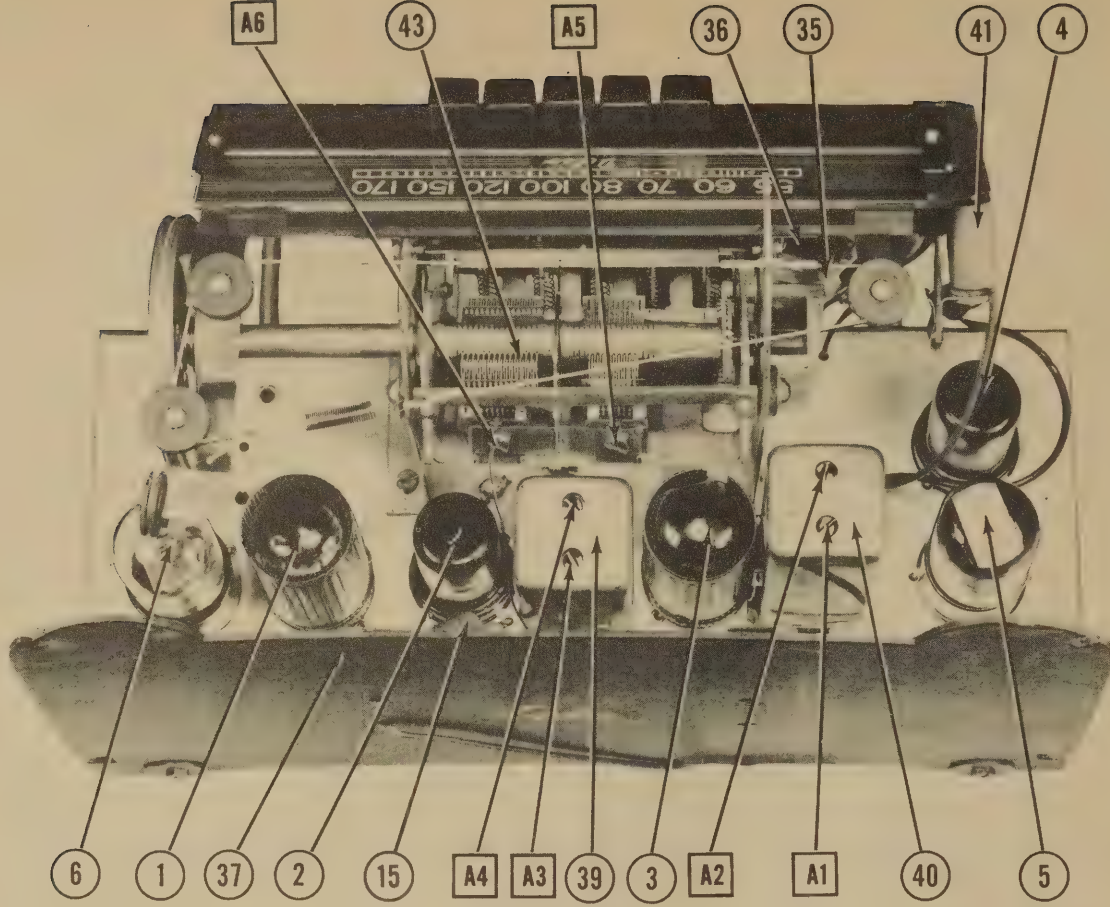
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		DELCO PART No.	IRC PART No.	
22	3900Ω	1214546	BTS-3900	Or.-White-Red RF Plate Load
23	47KΩ	1214553	BTS-47K	Yl.-Vi.-Or. Converter Grid
24	22KΩ	1214550	BTS-22K	Red-Red-Or. Osc. Grid
25	3.3 Meg.	1214564	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
26	56KΩ	1213267	BTS-56K	Grn.-Blue-Or. Tone Compensation
27	10 Meg.	1215548	BTS-10 Meg.	Br.-Blk.-Blue AF Grid Load
28	220KΩ	1214555	BTS-220K	Red-Red-Yl. AF Plate Load
29	470KΩ	1214559	BTS-470K	Yl.-Vi.-Yl. Output Grid
30	150Ω	1213220	BM-1-150	Br.-Grn.-Br. Output Cathode
31	1000Ω	1211037	BM-1-1000	Br.-Blk.-Red Filter
32	220KΩ	1214555	BTS-220K	Red-Red-Yl. Line Isolation
33	33Ω	BM-2-33		Or.-Or.-Blk. Rectifier Ballast - See Note

Note-Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		DELCO PART No.	STANCOR PART No.	THORADAR PART No.	MERIT PART No.	
34	3000Ω 3.3Ω 210Ω .95Ω	1216557	A-3976*	T22845*	A-2928*	*Drill new mounting holes.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		DELCO PART No.	JENSEN PART No.	
35A	FIELD PM	VC IMP. 3.3Ω	ST-105†	†Fabricate new mounting bracket.
B	CONC DIA.	VC DIA. 1/2	Mod. P5-A	
36				Alternate Speaker.
				NOT READILY REPLACABLE—USE COMPLETE SPEAKER UNIT.

R F COILS

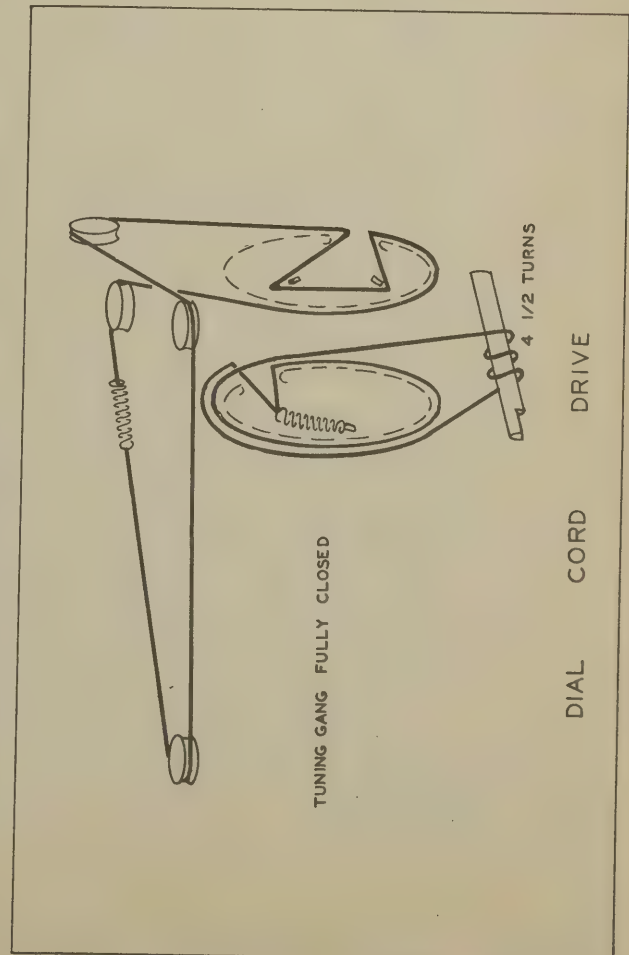
ITEM No.	USE	REPLACEMENT DATA	
		DELCO PART No.	MEISSNER PART No.
37	Loop Ant.	1.5Ω	1216621
38	Osc. Coil	3Ω	1216572
39	Input IF	18Ω	1216605
40	Output IF	18Ω	1216570

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	DELCO PART No.	
41	Bayonet	6-8	0.15A	Brown	435433	Type 47

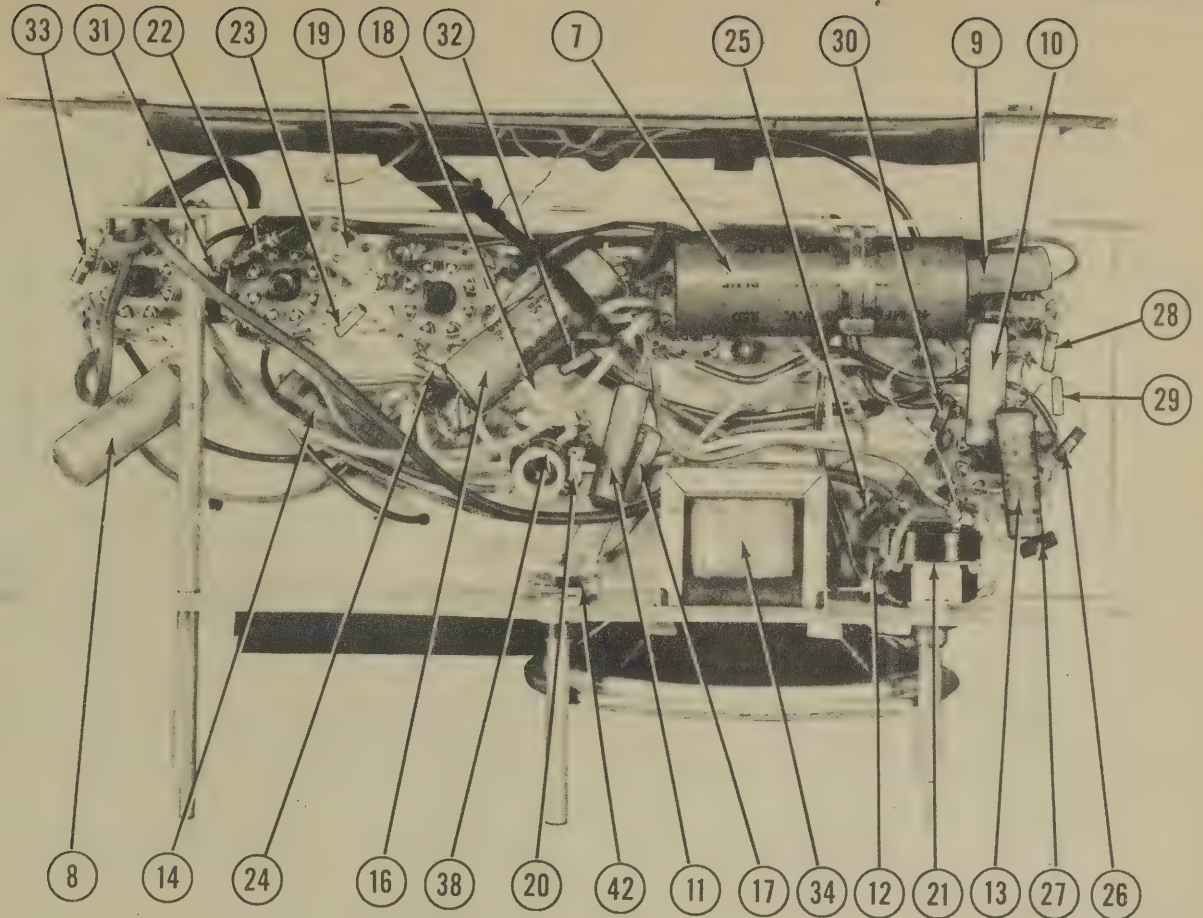
MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
42	Tone Switch	1216544	1217182 & 1217190 Alternates (34-502, 17-180 MTF)
43	2 gang Var. Cap.	1217399	
	Dial Glass	1216578	
	Pointer	1216498	

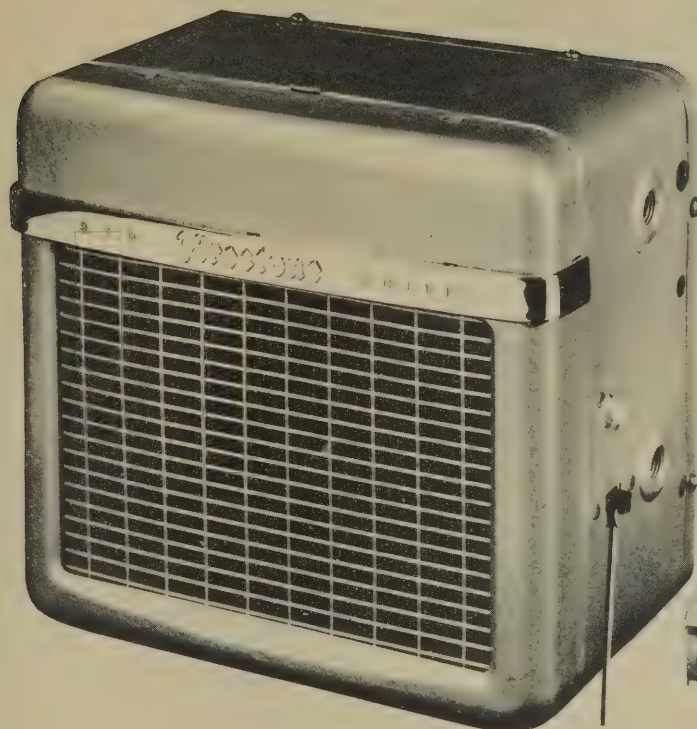


DELCO MODELS
R-1236, R-1237

CHASSIS—BOTTOM VIEW



DELCO MODELS
R-1236, R-1237

TONE
SWITCHFIRESTONE (AIR CHIEF) MODEL
4-B-6 (Code 117-7-PM18)

FIRESTONE (AIR CHIEF) MODEL 4-B-6

TRADE NAME Firestone (Air Chief) Model 4-B-6 (Code 117-7-PM18)
SUPPLIER The Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, Ohio
TYPE SET Battery Operated Automotive Superheterodyne Receiver
TUBES (SIX) Types, 6SK7GT RF Amp., 6SA7 Converter, 6SK7GT IF Amp., 6SQ7GT Det.-AVC-AF, 6V6GT Power Output, OZ4 or 6X5GT Rectifier.

POWER SUPPLY 6 Volt Storage Battery**TUNING RANGE—BROADCAST** 540-1600KC**RATING**

5.4 AMP. @ 6 Volts DC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to Pin 4 (grid) 6SK7 (RF Tube #1). Low side to chassis.	455KC	Tuning slugs fully in.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2 .1 MFD.	"	"	"	"	A5	Adjust for minimum output.
3 100MMFD	High side to ant socket. Low side to chassis.	1600KC	Tuning slugs fully out.	"	A6,A7, A8	Adjust for maximum output.
4 100MMFD	"	540KC	Tuning slugs fully in.	"	A9	Adjust for maximum output. Repeat Step 3.
5 100MMFD	"	600KC	Tune for maximum output.	"	A9	Rock tuning slugs and adjust for maximum output. Repeat Steps 3 through 5 until no further improvement can be made.
If after Step 5 sensitivity is low repeat Steps 3 through 5 performing the following Step between Steps 4 & 5 using the following dummy for all steps. Connect 50 MMF. capacitor in series with high side of sig. gen. to receiver ant. socket. Connect a 40 MMF. cap. from ant. socket to chassis. These values are critical and must be used to insure proper tracking.						
4A See above note	See above note.	1400KC	Tune for maximum output.	Across voice coil	A10,A11	Adjust for maximum output. Cement core adjustments to prevent changing of adjustment due to vibration.

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PROPERTY OF
COLORADO
BLANKENSHIP
FIRESTONE (AIR CHIEF)
MODEL 4-B-6

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIR CHIEF PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7GT	6SK7GT	8N	
2	Converter	6SA7	6SK7GT	8N	
3	IF Amp.	6SK7GT	6SK7GT	8N	
4	Detector, AVC-AF	6SK7GT	6SK7GT	8Q	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	0Z4	0Z4	4RM	
7	Reverber	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		AIR CHIEF PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	20	25099	FP330	DY-312	EL-212	Filter
7B	350	25110	OK344	TM-16-006	1684-006	Output Cathode Bypass
7C	20	25108	TP421	S-4-01	TC-31	Output Plate Bypass
8	.006	25108	TP408	S-6-005	TC-25	Audio Coupling
9	.01	25104	TP408	S-6-005	TC-25	Tone Compensation
10	.005	25104	TP408	S-6-002	TC-22	Audio Coupling
11	.005	25102	TP426	S-4-08	TC-15	Tone Compensation
12	.002	25102	TP426	S-4-08	TC-15	IF Cathode Bypass
13	.05	25102	TP426	S-4-08	TC-15	AVC Filter
14	.05	25102	TP426	S-4-08	TC-15	Screen Bypass
15	.05	25102	TP426	S-4-08	TC-15	RF Cathode Bypass
16	.05	25102	TP426	S-4-08	TC-15	RF Coupling
17	.01	25112	TP421	SHH-2	TC-11	Hash Filter
18	.5	25118	OK345	SHH-2	TR-27	Buffer
19	.07	25109	TP431	SDH-4-5	TC-5	RF Bypass Power Supply
20	.5	25188	MC235	MO-5-31	1FM-31	AF Plate Bypass
21	.5	25188	MC235	MO-5-31	1FM-31	Fixed Trimmer-Silver
22	100	25124	MC235	MO-5-31	1FM-31	Osc. Grid Capacitor
23	420	25188	MC245	MO-5-35	NS-42	Fixed Padder
24	100	25188	MC245	MO-5-35	1FM-35	Fixed Trimmer
25	500	25189	MC245	MO-5-35	1FM-35	RF Coupling
26	500	25189	MC245	MO-5-35	1FM-35	Fixed Padder
27	500	25188	MC245	MO-5-35	1FM-35	Fixed Padder
28	100	25188	MC245	MO-5-35	1FM-35	Fixed Padder
29	500	25189	MC245	MO-5-35	1FM-35	Filament Bypass

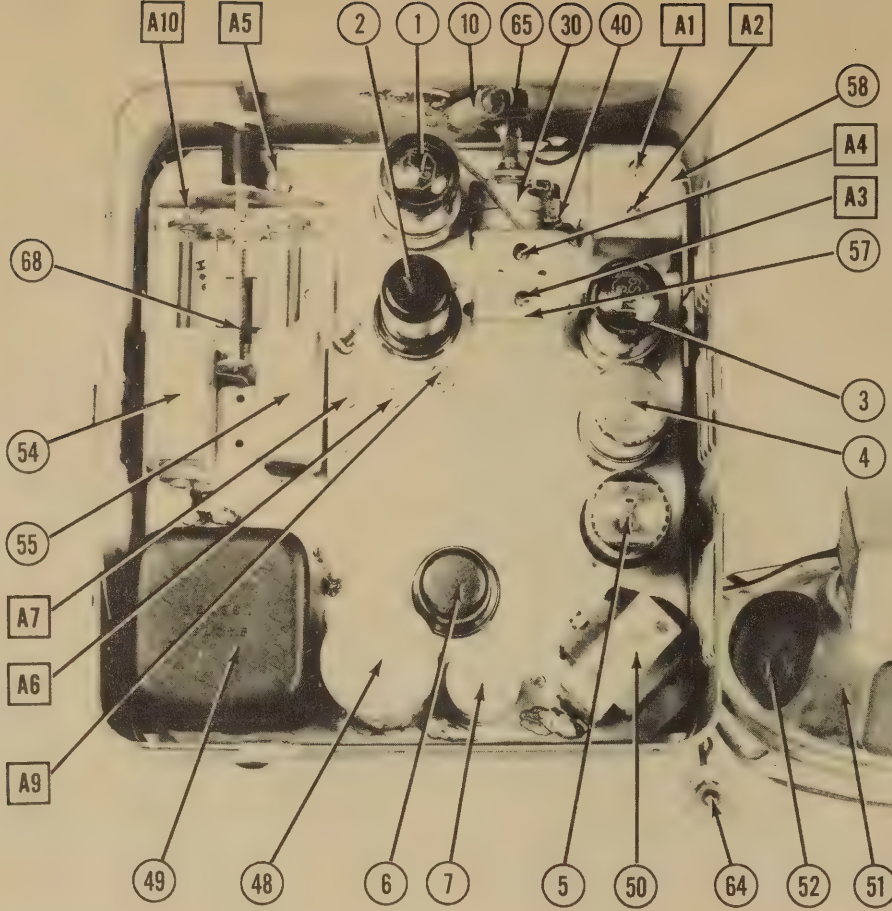
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIR CHIEF PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
30A	500KΩ	78042	TR233	D18-133X	AT-88	Volume Control
30B	500KΩ	Not Req.	SS23	A*	RS-2*	Attach to 30A per instructions
31	80-800Ω	78146	M26	41	SW-A	Sensitivity Control

*file shaft to duplicate original.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		AIR CHIEF PART No.	IRC PART No.	
32	100KΩ	77214	BTS-100K	Br.-Blk.-Yl. Antenna Loading
33	1 Meg.	77218	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
34	1 Meg.	77218	BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
35	10KΩ	77212	BTS-10K	Br.-Blk.-Or. RF Plate Load
36	1 Meg.	77218	BTS-1 Meg.	Red-Red-Or. Oscillator Grid
37	22KΩ	77266	BTS-22K	Red-Red-Or. Screen Dropping
38	22KΩ	77069	BTA-22K	Br.-Blk.-Br. IF Cathode
39	100Ω	77258	BW-100	Or.-Or.-Or. Tone Compensation
40	33KΩ	77267	BTS-33K	Br.-Blk.-Blue AF Grid
41	10 Meg.	77274	BTS-10 Meg.	Red-Red-Yl. AF Plate Load
42	220KΩ	77216	BTS-220K	Yl.-Yl.-Yl. Output Grid
43	470KΩ	77217	BTS-470K	Or.-Or.-Br. Output Cathode
44	330Ω	77260	BW-330	Br.-Blk.-Red Filter
45	1000Ω	77123	BTA-1000	Br.-Blk.-Br. Hash Suppressor
46	100Ω	77258	BW-100	
47	100Ω	77258	BW-100	



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	REPLACEMENT DATA			INSTALLATION NOTES
			AIR CHIEF PART No.	MALLORY PART No.	RADIART PART No.	
48	Interrupter	6.3	76001	859	5301	

TRANSFORMER (VIBRATOR)

ITEM No.	RATING			REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	AIR CHIEF PART No.	STANCOR PART No.	MERIT PART No.
49	5.5V DC	150V CT	SEC. 3	94078	P-4060T	T22R20T

1 Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		
	IMPEDANCE	DC RES.	SEC.	AIR CHIEF PART No.	THORDARN PART No.	MERIT PART No.
50	3500Ω	3.5Ω	3402	94229	A-3850	T22S46

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		
	FIELD	VC	IMP.	AIR CHIEF PART No.	JENSEN PART No.	INSTALLATION NOTES
51	FW	3.5Ω		81154	ST-109	
52	6"	1/2"			MOD. P8-W	

NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIR CHIEF PART No.	MEISSNER PART No.	
53	Ant. Coil	7.5Ω				Items 53, 54 and 55 are slug tuned and are part of tuner assembly.
54	Rf Coil	2.5Ω				
55	Osc. Coil	3.5Ω				
56	Osc. Sn. Coil	13Ω				
57	Input IF	13Ω		38838	16-6658	
58	Output IF	13Ω		38889		
59	Wave Trap	INF.		38990		
60	Rf Choke	02		38733		
61	"	02		38279		
62	"	02		38277		
63	"	02		38278		

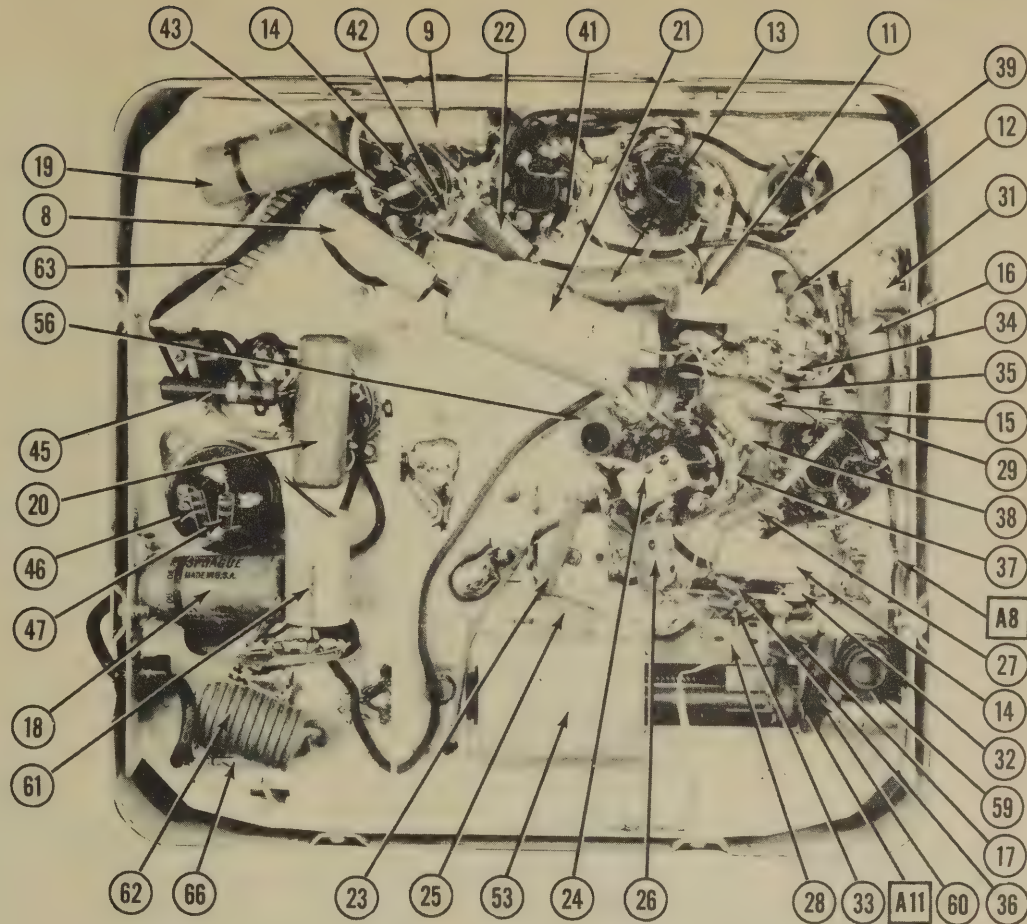
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	AIR CHIEF PART No.	
64	Bayonet	7.5	0.2	White	11172	Type 51

MISCELLANEOUS

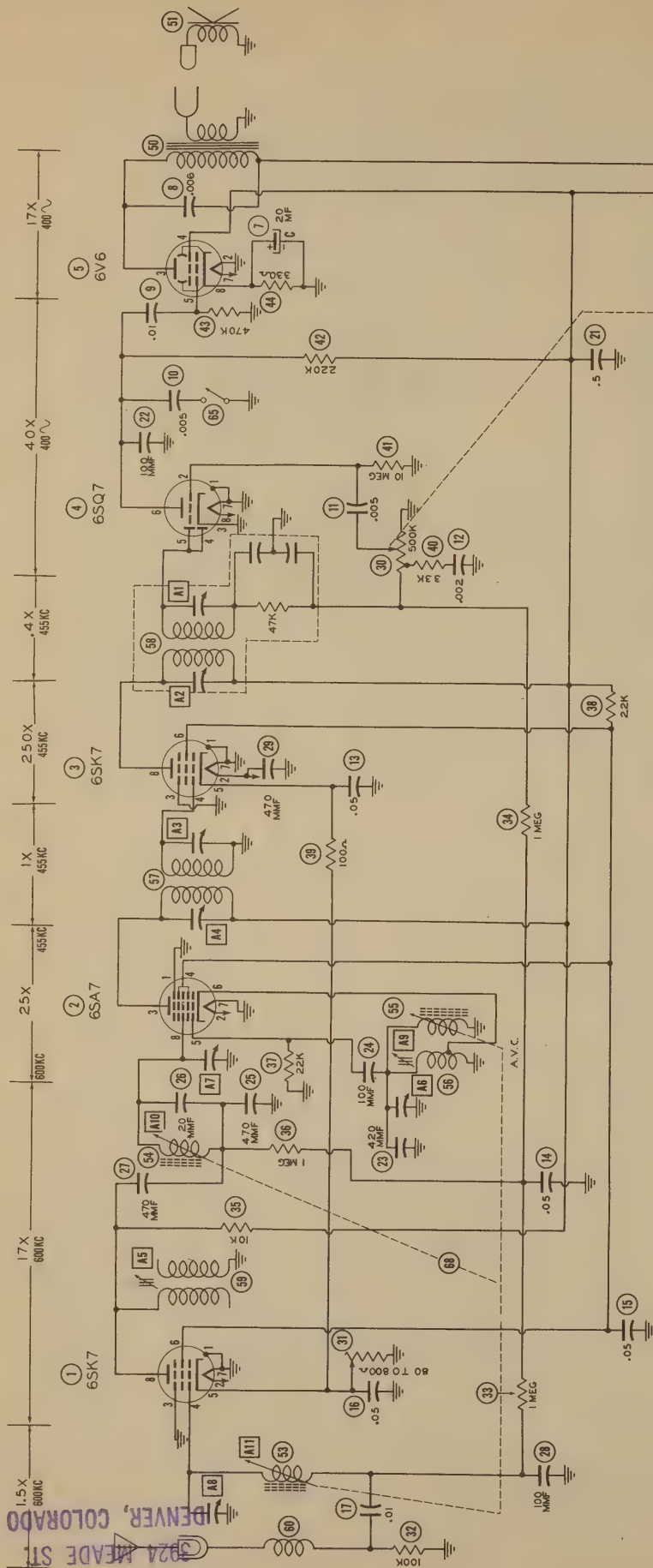
ITEM No.	PART NAME	AIR CHIEF PART No.	NOTES
65	Tone Switch	90071	(SPST)
66	Spark Plate	25100	
67	Fuse	48012	15 Amp.
68	Tuner Assembly	33281	
A6	Trimmer Strip	28235	Osc. Adj.
A7	Trimmer	28236	Rf Adj.
A8	Trimmer	28236	Ant. Adj.

CHASSIS—BOTTOM VIEW



FIRESTONE (AIR CHIEF)
MODEL 4-B-6

9-
COLORADO


$$IF=455KC$$

6SK7GT				6SA7			
Pin	No.	Volt.	Res.	Volt.	No.	Volt.	Res.
1	1	0V.	∞	0V.	Q2	0V.	Q2
2	3	6.3VDC	.5Ω	6.3VDC	.5Ω	6.3VDC	.5Ω
3	2	0V.	.5Ω	225VDC	220KΩ	225VDC	220KΩ
4	4	1.1VDC	2.6 Meg.	68VDC	240KΩ	68VDC	240KΩ
5	1, 1VDC	85Ω	-3.5VDC§	250KΩ		85Ω	250KΩ
6	6	6.3VDC	240KΩ	.5Ω		6.3VDC	.5Ω
7	0V.	0V.	0Ω	0Ω		0V.	0Ω
	180VDC	230KΩ	-5VDC	8 Meg.		180VDC	230KΩ

Pin	No.	Volt.	Res.	Volt.	Res.
68K70T	1	0V.	0V.	0V.	68K70T
	2	6.3VDC	5Ω	-6VDC	10 MΩ.
	3	0V.		0V.	0Ω
	4	0V.	12.5Ω	-5VDC	630KΩ
	5	1.75VDC	180Ω	-5VDC	630KΩ
	6	65VDC	240KΩ	93VDC	440KΩ
	7	0V.	0Ω	0V.	0Ω
	8	225VDC	220KΩ	6.3VDC	5Ω

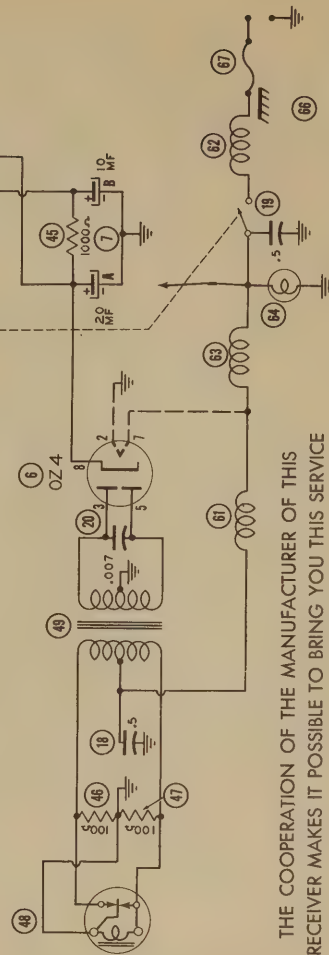
Pin	6V50T		Res.	Volt.	024	Res.
1	0V.	02	0V.	02	02	02
2	0V.	03	0V.	0V.	02	02
3	225VDC	220KQ	225VDC	225VDC	320Q	320Q
4	225VDC	220KQ	225VDC	0V.	INF.	INF.
5	0V.	500KQ	225VDC	225VDC	340Q	340Q
6	250VDC	220KQ	225VDC	0V.	INF.	INF.
7	6.3VDC	.5Q	6.3VDC	6.3VDC	.5Q	.5Q
8	500VDC	220KQ	225VDC	225VDC	320Q	320Q

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

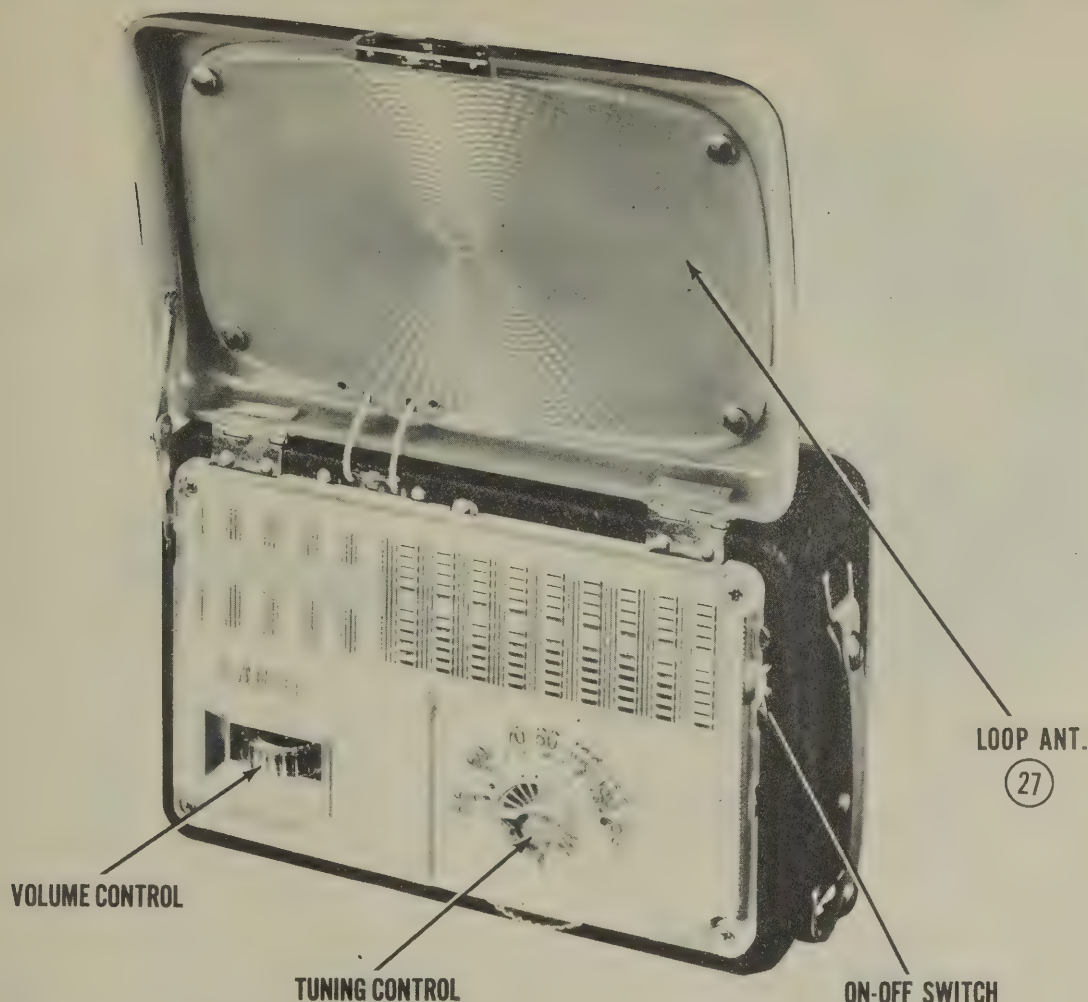
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE



- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Battery voltage maintained at 6.3 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. The average stage gain measured is possible to introduce as many variables into the measurement as possible, such as, type of equipment used for measuring, handling, and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by connecting negative (-) 3 volts to the AVC line.



TRADE NAME Garod, Model 4A-1, 4A-2
MANUFACTURER Garod Radio Corp., 70 Washington St., Brooklyn 1, N.Y.
TYPE SET Battery Operated Portable Superheterodyne with Loop Antenna
TUBES (FOUR) Types, 1R5 Converter, 1T4 IF Amp., 1R5 Det.-AVC-AF, 3S4 Power Output.

POWER SUPPLY 1.5 Volts "A" Supply and 67.5 Volts "B" Supply
RATING 260MA @ 1.5V DC and 9MA @ 67.5V DC
TUNING RANGE—BROADCAST 540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Extend loop leads and solder to original points.
 Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output.
2	Place sig. gen. leads near loop of receiver.	1650KC	"	"	A5	" " " "
3	"	1500KC	Tune for maximum output.	"	A6	" " " "
4	"	600KC	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 and 4 until no further improvement can be made.
5	Reinstall receiver in case and tune in a weak station near 1500KC. Adjust A6 for maximum volume.					

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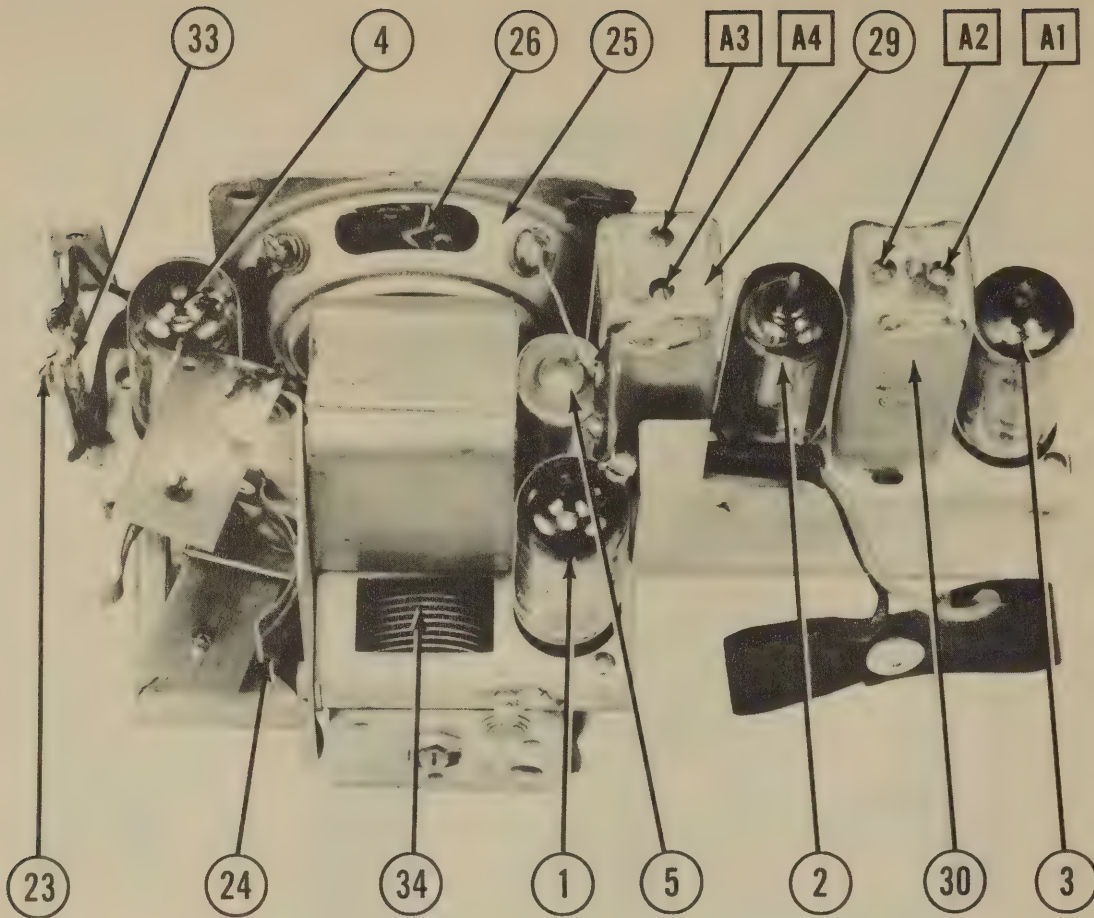
PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		GAROD PART No.	STANDARD REPLACEMENT	RAA BASE TYPE	
1	Converter	1R5	1R5	7AT	
2	IF Amp	1T4	1T4	6AR	
3	Det.-AVC	1S5	1S5	6AU	
4	Power Output	384	384	7BA	

CHASSIS—TOP VIEW

GAROD MODEL 4A-1, 4A-2
BATTERY OPERATED



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	GAROD PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.		
5	8	100	5,417		M-8-150		BR815	Power Supply Bypass
6	.001	150			TTR-1.5-001		ZZ1D1	Output Plate Bypass
7	.002	200			TTR-1.5-002		ZZ1D2	Audio Coupling
8	.02	150			TTR-1.5-02		ZY1S2	AF Screen Bypass
9	.002	200			TTR-1.5-002		ZZ1D2	Audio Coupling
10	.002	150			TTR-1.5-02		ZY1S2	AVC Filter
11	.02	150			TTR-1.5-02		ZY1S2	IF Screen Bypass
12	.47	47						AF Plate Bypass Cer
13	.47	47						Diode RF Filter "
14	.47	47						Osc. Grid Cap. "

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		GAROD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
15	RESIST. 2 Meg. ANCE 1/2	8,204				Volume Control

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		GAROD PART No.	IRC PART No.	BTS PART No.	
16	100K			BTS-100K	Br.-Blk.-Yl. Oscillator Grid
17	4700			BTS-4700	Yl.-Vi.-Red Screen Dropping
18	3.3 Meg.			BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
19	10 Meg.			BTS-10 Meg.	Br.-Blk.-Blue AF Grid
20	4.7 Meg.			BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen Dropping
21	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
22	3.3 Meg.			BTS-3.3 Meg.	Or.-Or.-Grn. Output Grid
23	820			BTS-820	Gray-Red-Br. Bias

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE PRI.	SEC.	DC RES. SEC.	GAROD PART No.	STANCOR PART No.	THORAR'N PART No.	
24	9000	3.3	6702	.52	9,207		A-2399

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
			GAROD PART No.	JENSEN PART No.	
25	FIELD PM 3-32	VC IMP.			
26	CONE DIA. VC DIA. 2-7/16" 1/2"		30-315		
NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT					

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	GAROD PART No.	MEISSNER PART No.
27	Loop Ant.	4.52		1.460	
28	Osc. Coil	23	112	1.462	
29	Input IF	362	362	1.412	
30	Output IF	322	342	1.413	

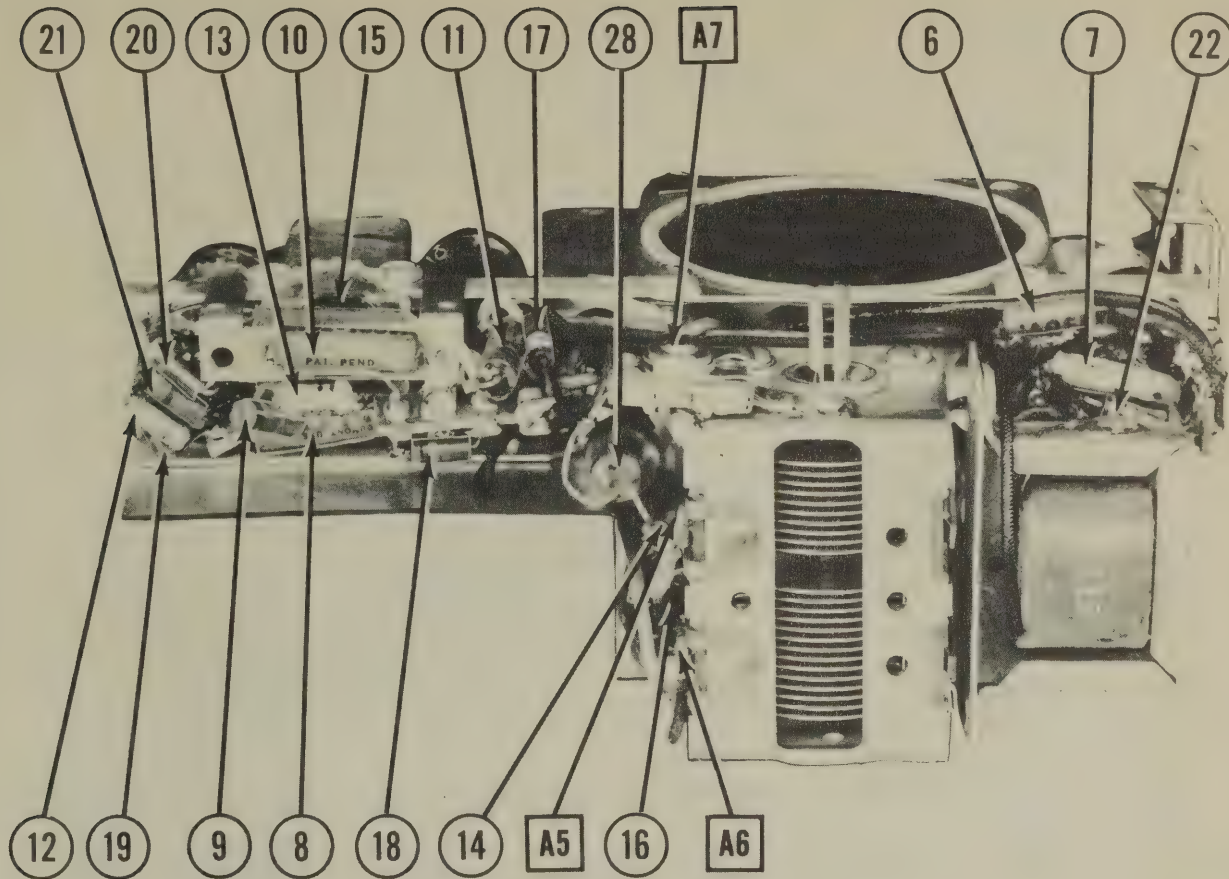
BATTERIES

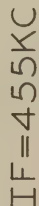
ITEM No.	VOLTAGE	GAROD PART No.	EVEREADY		INSTALLATION NOTES
			"A"	"B"	
31	1 1/2V "A"		#960		
32	67V "B"			#467	

MISCELLANEOUS

ITEM No.	PART NAME	GAROD PART No.	NOTES
33	On-Off Switch	11.214	
34	12 Gauge Var. Cap.	2.212	(27-349 MTF, 13-241 MTF)

CHASSIS—BOTTOM VIEW





Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	OV.	57VDC	47VDC	-8.5VDC§	OV.	OV.	1.5VDC
2	1T4	OV.	57VDC	47VDC	57VDC	OV.	-1VDC	1.5VDC
3	1R5	OV.	57VDC	47VDC	20VDC	20VDC	-1VDC	1.5VDC
4	3R4	1.5VDC	55VDC	-9VDC	57VDC	OV.	55VDC	1.5VDC

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A PHOTOFACT STANDARD NOTATION SCHEMATIC

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Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	02	120K2	125K2	100K2	02	4.52	2
2	174	02	120K2	125K2	120K2	02	5 Meg.	2
3	185	02	120K2	1.7 Meg.	4.8 Meg.	1.1 Meg.	10 Meg.	2
4	354	2	120K2	3 Meg.	120K2	02	120K2	2

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than absolute values. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting to chassis.

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC
- 2 - Voltages measured at 100 ohms per volt.
- 3 - Measured values at 100 ohms per volt are shown in parentheses.
- 4 - Measured values at 20,000 ohms per volt are shown in square brackets.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.



GAROD MODEL 62B

TRADE NAME Garod, Model 62B
 MANUFACTURER Garod Radio Corp., 70 Washington St., Brooklyn 1, N.Y.
 TYPE SET AC-DC Operated 2 Band Superheterodyne Receiver with Loop Ant.
 TUBES(SIX) Types, 6BJ6 RF Amp., 12BE6 Converter, 6BJ6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.

POWER SUPPLY 105-125 Volts AC-DC
 TUNING RANGE—BROADCAST 540-1650KC
 RATING .230 Amps. @ 117 Volts AC
 SHORT WAVE 5.7-18.5MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to front stator of tuning cap. Low side to chassis.	455KC	BC (clockwise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to hum modulation.
2	Loop	1650KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3	"	1500KC	"	Tune for maximum output.	"	A6,A7	Adjust for maximum output.
4	"	600KC	"	"	"	A8	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 & 4 until no further improvement can be made.
5 400Ω carbon res.	High side to ext. ant. lead. Low side to chassis.	18.5MC	SW (counterclockwise)	Tuning cap. fully open.	"	A9	Adjust for maximum output.
6	"	16MC	"	Tune for maximum output.	"	A10, A11	Rock tuning cap. and adjust for maximum output.

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 DATE 12/47 SET #29 FOLDER #4719-10

PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW

GAROD
MODEL 62B

ITEM No.	DESCRIPTION	REPLACEMENT DATA			INSTALLATION NOTES
		GAROD PART No.	STANDARD REPLACEMENT	BMA BASE TYPE	
1	RF Amp.	6BJ6	6BJ6	7CH	
2	Converter	12BE6	12BE6		
3	IF Amp.	6BJ6	6BJ6	7BT	
4	Det. AVC	12AT6	12AT6	50B5	
5	Power Output	50B5	50B5	7B2	
6	Rectifier	35W4	35W4	5B2	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		GAROD PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	20	5.400-7	TC45	DY-804020-15	UT-201	AF844DT	Filter
B	80		FP3371	EL-3401	EL-3401	FRS150-50	" Filter
C	150						
8	10		TC-22	M-10-25	TA-10	FRS25-10	Output Cathode Bypass
9	.05		TP426	TPH-6-05	TC-15	484-05	Line Filter
10	.01		TP426	S-4-01	TC-11	484-01	Audio Coupling
11	.01		TP426	S-4-01	TC-11	484-01	" "
12	.002		TP426	S-6-002	TC-22	684-002	Tone Compensation
13	.02		TP423	S-4-02	TC-12	484-02	IF Cathode Bypass
14	.02		TP423	S-4-02	TC-12	484-02	AVC Filter
15	.02		TP423	S-4-02	TC-12	484-02	" "
16	.02		TP423	S-4-02	TC-12	484-02	RF Cathode Bypass
17	.02		TP423	S-4-02	TC-12	484-02	Ant. Coupling
18	.005		TP408	S-6-005	TC-25	684-005	AVC Filter
19	.02		TP423	S-4-02	TC-12	484-02	Conv. Screen Bypass
20	.2		TP423	S-4-2	TC-2	484-2	Output Plate Bypass
21	.02		TP423	S-4-02	TC-12	484-02	AF Plate Bypass Cer.
22	220		MC240	MO-5-325	LFM-325	1468-00025	Diode RF Filter
23	100		MC235	MO-5-31	LFM-31	1468-0001	Fixed Pad
24	2750		MC235	MO-5-31	LFM-31	1468-0001	Osc. Grid Cap. Cer.
25	100		MC235	MO-5-31	LFM-31	1468-0001	RF Bypass
26	500		MC235	MO-5-31	LFM-31	1468-0001	" "

†Parallel sections to obtain desired capacity. †Not used in all models.

CONTROLS

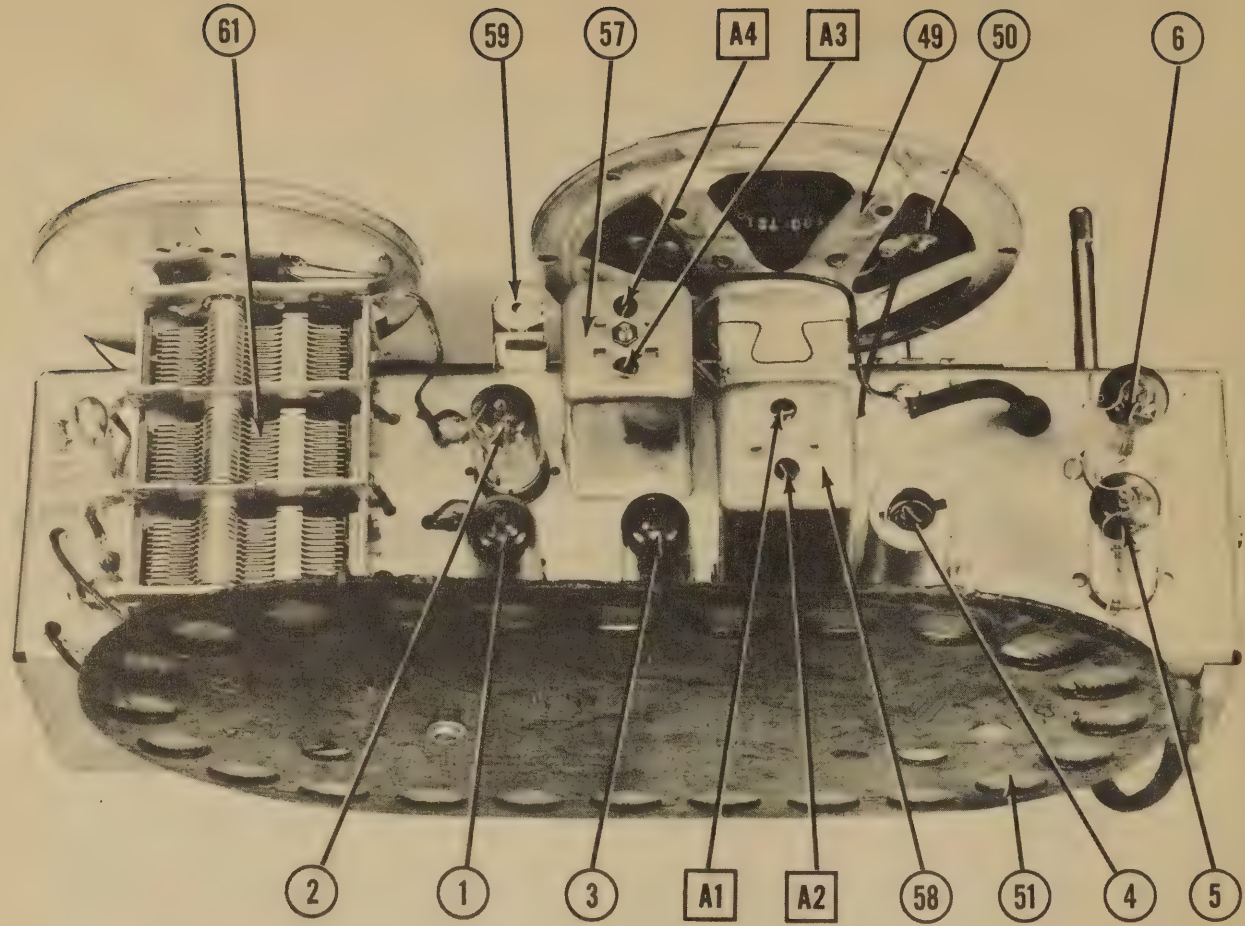
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		GAROD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
27A	1 Meg.	8-200-4	MC402	D13-137	AN-83-Z	Volume Control
B	Switch	Not Req.	Not Req.	E	KSS-8	Attach to 27A per instructions
28	1 Meg.	8-203-1	MC26	41	SW-A	Tone Control

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		GAROD PART No.	MALLORY PART No.	IRC PART No.	
29	1 Meg.				Br.-Blk.-Grn. AVC Network
30	1 Meg.				Br.-Blk.-Grn. AVC Network
31	1 Meg.				Br.-Blk.-Grn. AVC Network
32	68K				Blue-Gray-Blk. RF Cathode
33	8200K				Gray-Red-Red Voltage Dropping
34	22K				Red-Red-Or. Osc. Grid
35	47K				VI.-V1.-Blk. Parasitic Suppressor
36	4700K				VI.-V1.-Red Converter Screen Dropping
37	330K				Or.-Or.-Br. IF Cathode
38	470K				VI.-V1.-Br. IF Cathode
39	4700K				VI.-V1.-Red IF Filter. See Note 1
40	4.7 Meg.				Red-Red-Gr. AF Grid Load
41	220K				Red-Red-Gr. AF Plate Load
42	470K				VI.-V1.-Blk. Output Grid
43	150K				Br.-Grn.-Br. Output Cathode
44	100K				Br.-Blk.-Br. Filter
45	1000K				Br.-Blk.-Red Filter
46	270K				SW-2-270
47	160K	6.206	ABA-200†		Pilot Light Shunt

†Set slider at 160K from one end.

Note 1 - Not used in all models. Note 2 - Used on 220V - 240V operation only.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	DC RES.	DC RES.	GAROD PART No.	THORDARN PART No.	
48	1650Ω	3.2Ω	250Ω	.45Ω	9.200	A-3876 T22845	A-2928

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	GAROD PART No.	JENSEN PART No.	
49	PM	3.2Ω	30.311	ST-107* Mod. P5-V	*Drill and tap magnet frame.
50	4-5/8"	1/2"	NOT READILY REPLACABLE—USE COMPLETE SPEAKER UNIT.		

R F COILS

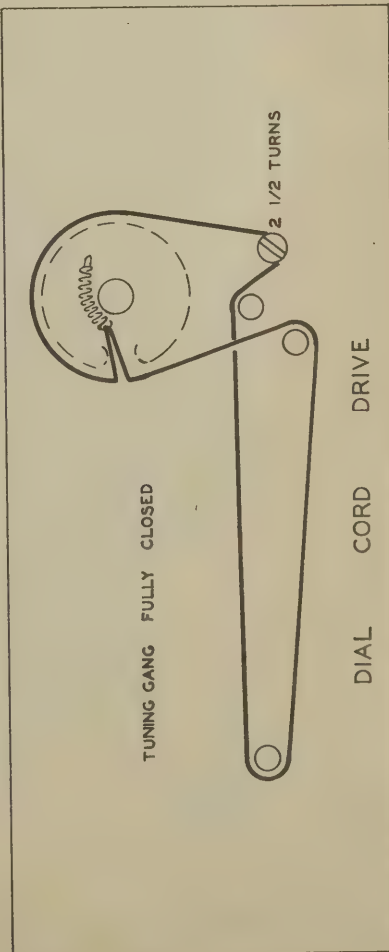
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	GAROD PART No.	WEISSNER PART No.
51	Loop Ant. Coil	.1Ω	1.2Ω	1.435	14-1044
52	SW Ant. Coil	4.5Ω	0Ω	1.433	14-1027
53	BC RF Coil	35Ω	4.5Ω	1.432	14-1045
54	SW RF Coil	4.7Ω	6Ω	1.436	14-1046
55	BC Osc. Coil	.5Ω	0Ω	1.431	14-1046
56	SW Osc. Coil	42Ω	42Ω	1.259	16-6658
57	Input IF	42Ω	42Ω	1.409	16-6660
58	Output IF	42Ω	42Ω	1.409	16-6660

DIAL LIGHT

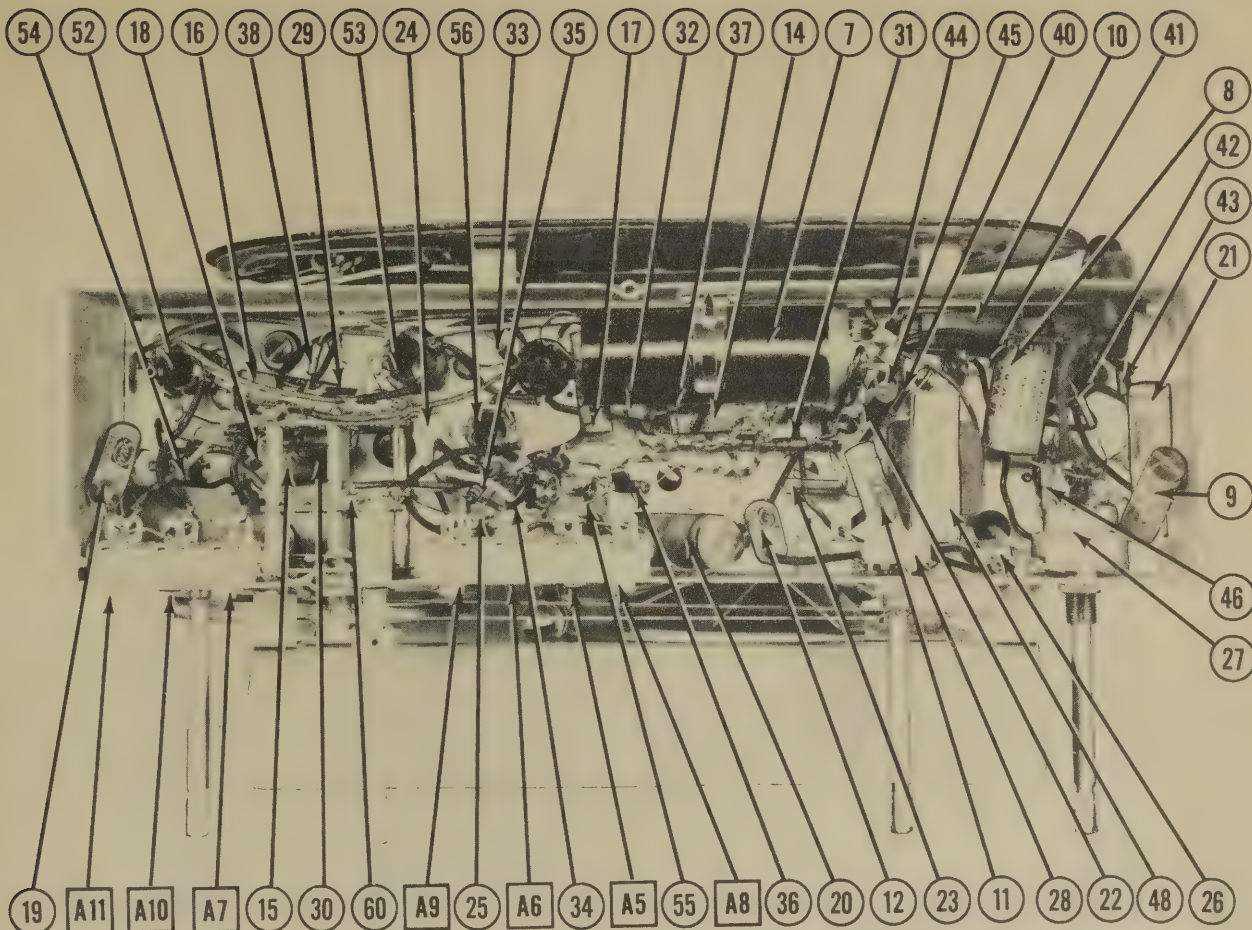
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	GAROD PART No.	
59	Bayonet	6-8	0.15	Brown		Type 47

MISCELLANEOUS

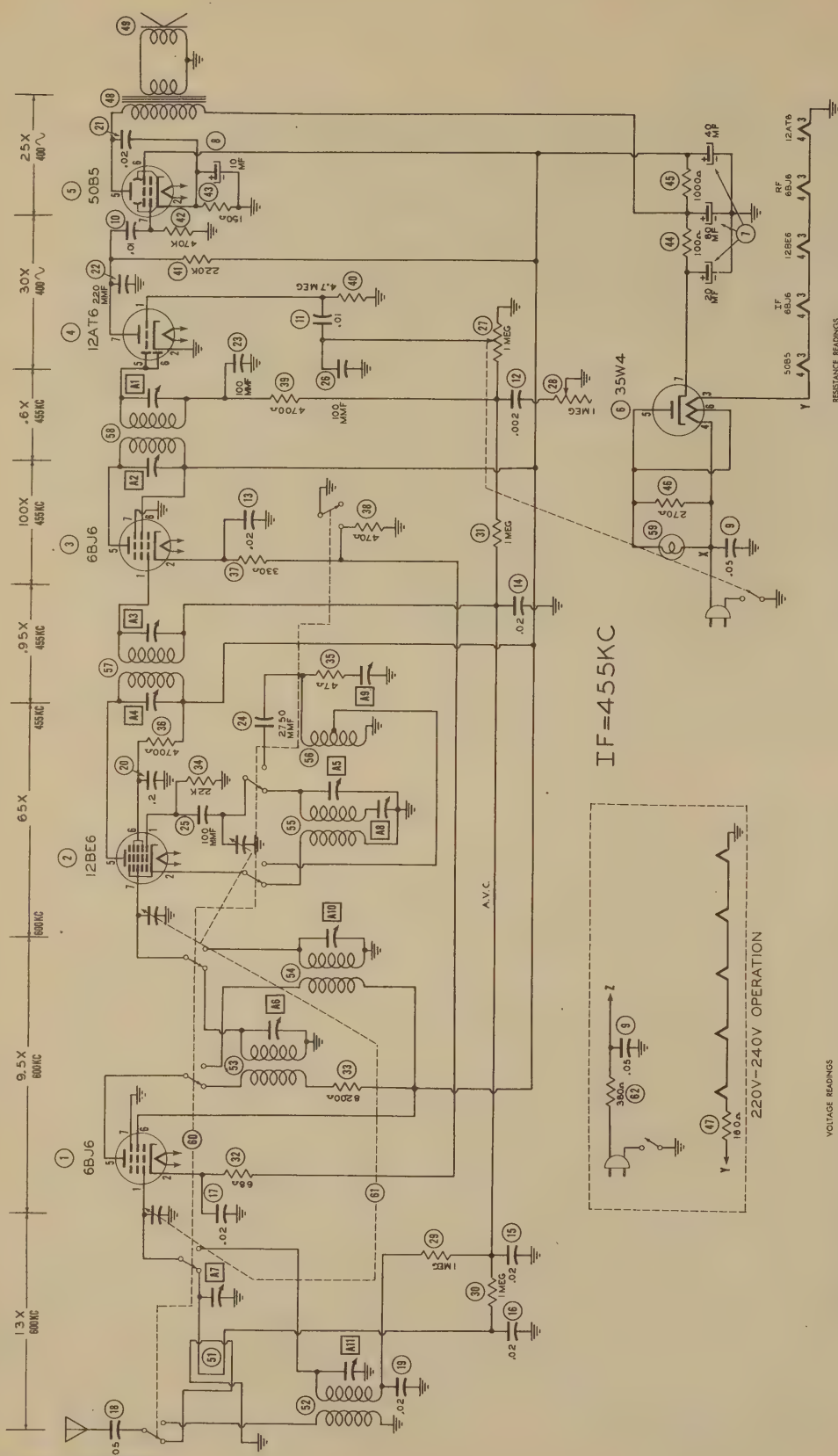
ITEM No.	PART NAME	GAROD PART No.	NOTES
60	Bandswitch	11-209-1	(13-474MF, 13-474MF, 13-474MF)
61	3 Gang Var. Cap.	2.202	390Ω 40W (220-240V)
62	Line Cord Res.	20.211	BC Osc. Adj.
A3	Trimmer Strip	4.106	BC RF Adj.
A6			BC Osc. Padder
A8			SW Osc. Adj.
A9			BC Ant. Adj.
A10	Trimmer Strip	4.107	SW RF Adj.
A11			SW Ant. Adj.



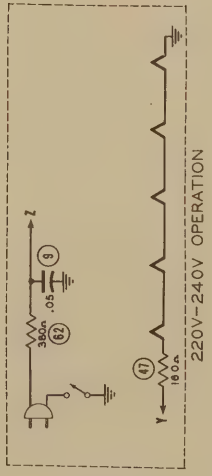
CHASSIS—BOTTOM VIEW



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DENVER, COLORADO



IF=455KC



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	6BJ6	-1.1VDC	2.1VDC	13VAC	20VAC	80VDC	80VDC	OV.
2	12BE6	-6.4VDC	OV.	20VAC	33VAC	98VDC	75VDC	OV.
3	6BJ6	-1.1VDC	3.6VDC	33VAC	39VAC	98VDC	88VDC	OV.
4	12AT6	-6.7VDC	OV.	13VAC	13VAC	-5VDC	-5VDC	50VDC
5	50B5	OV.	5.5VDC	39VAC	85VAC	110VDC	68VDC	OV.
6	35W4	OV.	OV.	85VAC	117VAC	113VAC	113VAC	120VDC

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.
§ TAKEN WITH VACUUM TUBE VOLTMETER.

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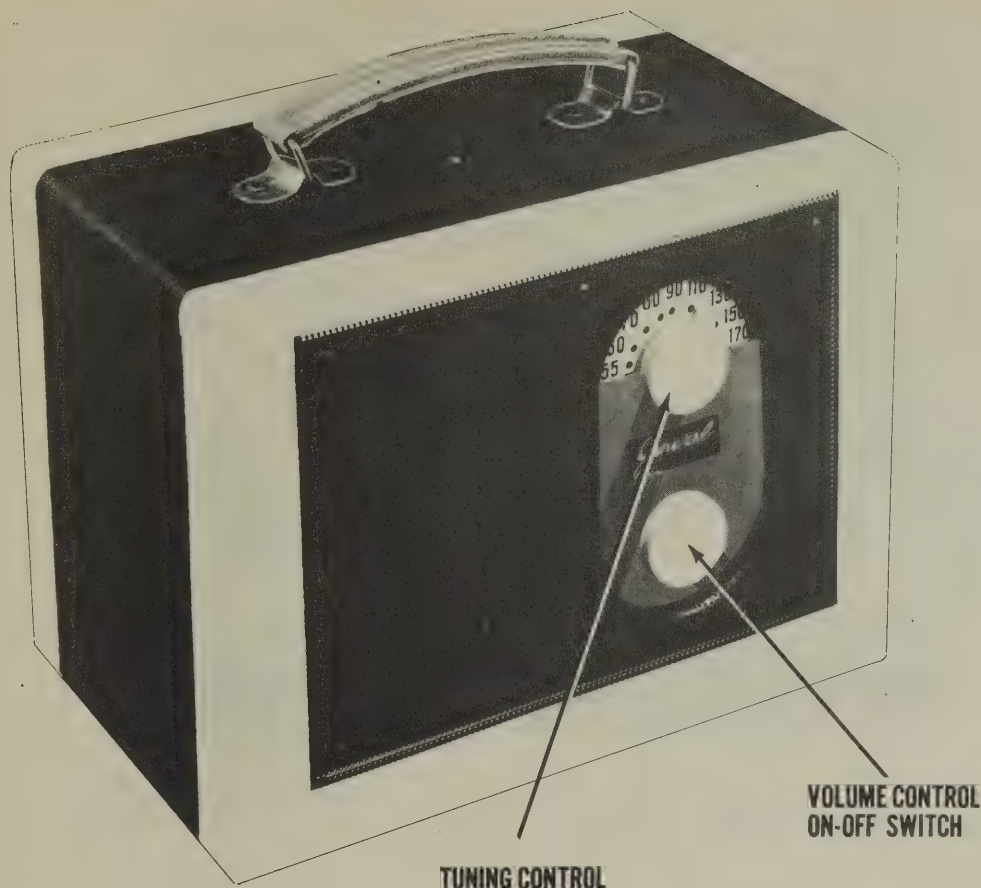
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	6BJ6	3 MEG.	500Ω	13Ω	20Ω	50KΩ	42KΩ	0Ω
2	12BE6	22KΩ	7Ω	20Ω	32Ω	40KΩ	45KΩ	4.5Ω
3	6BJ6	2 MEG.	80Ω	32Ω	39Ω	40KΩ	40KΩ	0Ω
4	12AT6	5 MEG.	0Ω	0Ω	13Ω	1 MEG.	1 MEG.	260KΩ
5	50B5	470KΩ	150Ω	38Ω	92Ω	40KΩ	40KΩ	470KΩ
6	35W4	0Ω	0Ω	62Ω	115Ω	113Ω	113Ω	40KΩ

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



GENERAL TELEVISION MODEL 26B5

TRADE NAME	General Television, Model 26B5
MANUFACTURER	General Television and Radio Corp., 2701-17 Lehmann Court, Chicago 14, Ill.
TYPE SET	Three Power Portable Superheterodyne with Loop Antenna
TUBES (FIVE)	Types, 1R5 Converter, 1U4 IF Amp., 185 Det.-AVC-AF, 3V4 Power Output, 117Z6GT Rectifier.
RATING	.20 Amps. @ 117V AC or 48MA @ 7½V DC and 12MA @ 90V DC
POWER SUPPLY	110-120 Volts AC-DC or 7½ Volt "A" Supply and 90 Volt "B" Supply
TUNING RANGE—BROADCAST	530-1750KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation, transformer reduce dummy ant. to 200 MMF. to reduce hum modulation.
2	Loop	1500KC	1500KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3	"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

General Television Model
26B5 Battery Operated

CHASSIS—TOP VIEW

ITEM No.	REPLACEMENT DATA	GEN. TELE. PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1RS	1RS	7AT	
2	1st AMP.	1U4	1U4	6AR	
3	Det.-AVC	1S5	1S5	6AU	
4	Power Output	3V4	3V4	6BX	
5	Rectifier	117Z6GT	117Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

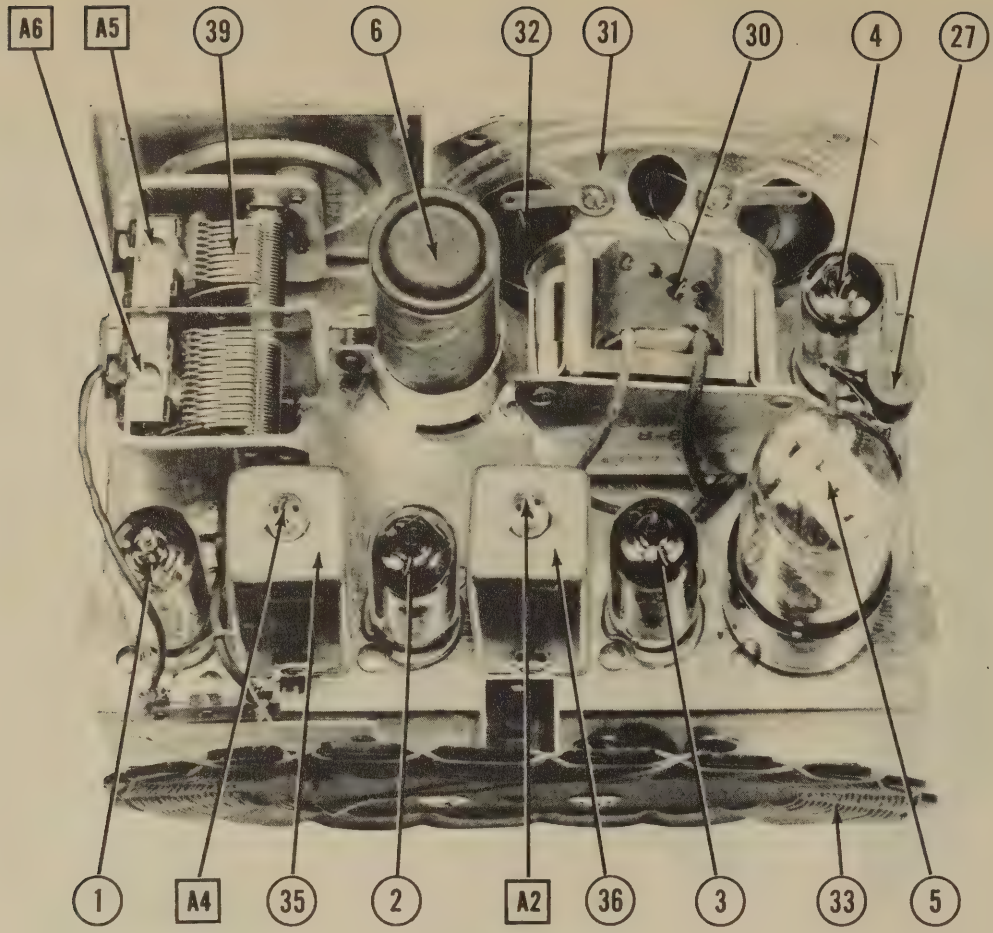
ITEM No.	RATING		GEN. TELE. PART No.	REPLACEMENT DATA			CORNEILL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT.		MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.		
6A	35	150	FP357		TA-440 UT-401	PR8A150-40-40 PR8150-40	UP44415	Filter - Red " " " " " " Fil. Bypass
B	35	150						
C	35	150						
7A	70	25						
B	25	25						
8	.1	200	TP428 TP405 TP421 TP421 TP421 TP421 TP423 TP421 TP415 MC235 MC240	MPH-4-1 S-6-002 S-4-01 S-4-01 S-4-01 S-4-02 S-4-01 S-6-05 MO 5-31 MO 5-325	TC-1 TC-22 TC-11 TC-11 TC-11 TC-12 TC-11 TC-15 1FN-31 1FN-325	484-1 684-002 484-01 484-01 484-01 484-02 484-01 684-05 1468-0001 1468-00025	BRH251 DT4PI DT6D2 DT4S1 DT4S1 DT4S2 DT4S1 DT6S5 SW571 SW5T25	Line Filter Output Plate Bypass Audio Coupling AF Screen Bypass Audio Coupling AVC Filter Osc. Anode Decoup. Fil. Bypass AF Plate Bypass Diode RF Filter
9	.002	600						
10	.01	400						
11	.01	400						
12	.01	400						
13	.02	400						
14	.01	400						
15	.05	600						
16	100	500						
17	250	500						

CONTROLS

ITEM No.	RATING	GEN. TELE. PART No.	REPLACEMENT DATA			INSTALLATION NOTES
			MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18	2 Meg.	20-7				Volume Control & Sw.

RESISTORS

ITEM No.	RATING	GEN. TELE. PART No.	REPLACEMENT DATA			IDENTIFICATION CODES
			RESISTANCE	WATTS	IRC PART No.	
19	100K			1/3	BTS-100K	Br.-Blk.-Vl. Oscillator Grid
20	30K			1/3	BTS-33K	Or.-Blk.-Or. Converter Screen Dropping
21	4.7 Meg.			1/3	BTS-4.7 Meg.	Vl.-Vl.-Grn. AVC Network
22	10 Meg.			1/3	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
23	4.7 Meg.			1/3	BTS-4.7 Meg.	Vl.-Vl.-Grn. AF Screen Dropping
24	500K			1/3	BTS-470K	Grn.-Blk.-Vl. AF Plate Load
25	1 Meg.			1/3	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
26	680			1/3	BTS-680	Blue-Gray-Br. Filament String
27	2000			1/3	BTA-2200	Red-Blk.-Red Filter
28	10			1/3	BM-10	Br.-Blk.-Blk. Rectifier Ballast
29	10			1/3		



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GEN. TELE. PART No.	STANCOR PART No.	MERIT PART No.		
			PRI.	SEC.					
30	7300Ω	3.3Ω	520Ω	.5Ω	Part of 8-8		A-2998		

SPEAKER

ITEM No.	RATINGS				REPLACEMENT DATA				INSTALLATION NOTES
	FIELD	PM	VC IMP.	VC DIA.	GEN. TELE. PART No.	JENSEN PART No.			
31			3.3Ω		8-8				
32	3-3/8"		1/2"		NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT.				

R F COILS

ITEM No.	USE	DC RES.				REPLACEMENT DATA			
		PRI.	SEC.	PRI.	SEC.	GEN. TELE. PART No.	MEISSNER PART No.		
33	Loop Ant.	1Ω	6Ω	13-1	14-2	14-1040			
34	Osc. Coil	10Ω	10Ω	14-2	15-3	16-6668			
35	Input IF	10Ω	10Ω	15-3	16-6669				
36	Output IF	10Ω	10Ω	15-3					Add 50MFD from grid to high side tuning cap.

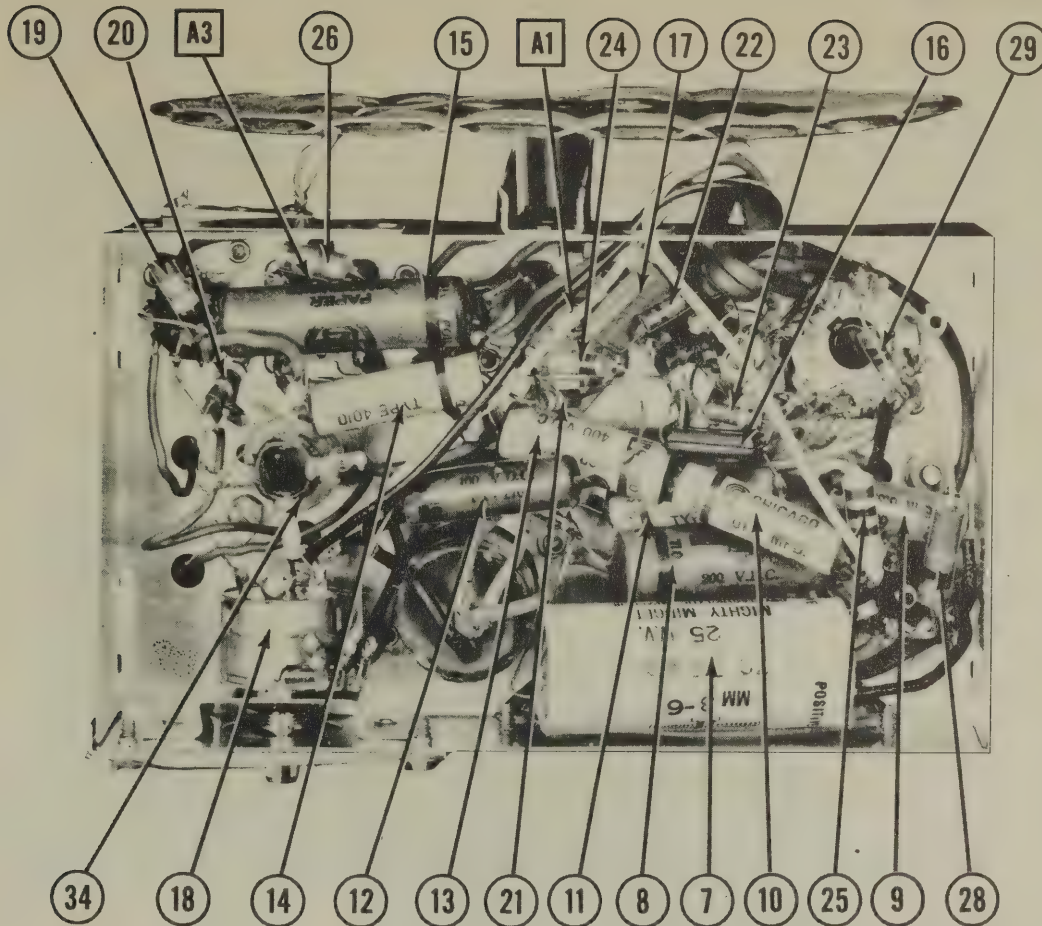
BATTERIES

ITEM No.	VOLTAGE	GEN. TELE. PART No.	EVEREADY				INSTALLATION NOTES
			"A"	"B"	"A-B"		
37	7 1/2V "A"		#935				5 Used in series
38	90V "B"			#455			2 Used in series

MISCELLANEOUS

ITEM No.	PART NAME	GEN. TELE. PART No.	NOTES
39	2 Gang Var.Cap.	6-3	(38-485, 30-197MFF)

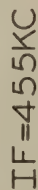
CHASSIS—BOTTOM VIEW



General Television Model
26B5 Battery Operated

General Television Model
26B5 Battery Operated

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DENVER, COLORADO



Pin		155		3V4	
No.	Volt.	Res.	Volt.	Res.	
1	1.6VDC	*	4.9VDC	*	
2	0V.	Ω	93VDC	25KΩ	
3	2VDC		95VDC	25KΩ	
4	16VDC	2 Meg.	95VDC	25KΩ	
5	31VDC	4.7 Meg.	6.4VDC	*	
		520KΩ			
6	1VDC	10 Meg.	0V.	1 Meg.	
7	3.3VDC	*	7.8VDC	*	

Pin	1172GGT	
No.	Volt.	Res.
1	OV.	OZ
2	117VAC	25OZ
3	116VAC	26OZ
4	139VDC	25KZ
5	116VAC	26OZ
6	95VDC	25KZ
7	OV.	OZ
8	123VDC	2.3KZ

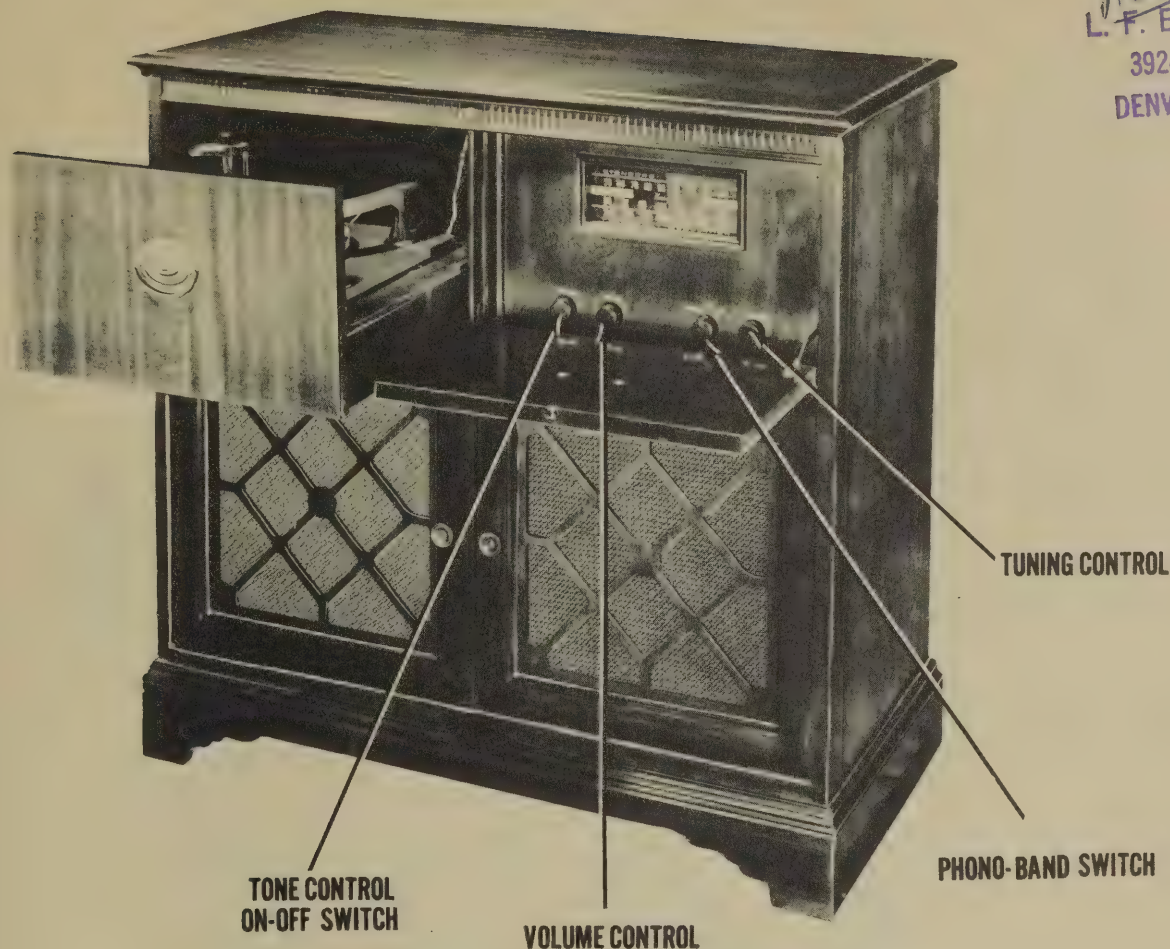
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THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values of the stage gain, rather than an absolute value. It should be kept in mind that, rather than introducing some variables into the measurement process, such as the type of equipment used for measuring, handling and the placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVG is made inoperative by absorbing AVG to chassis.

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC
- 2 - voltages measured at 1000 ohms per volt.
- 3 - socket connections are shown as bottom views.
- 4 - Measured values are from socket pin to common negative.
- 5 - Line voltage maintained at 117 volts for voltage readings.
- 6 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 7 - Volume control at maximum, no signal applied for voltage measurements.

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KNIGHT MODEL
11C-300

KNIGHT MODEL
11C-300

PAGE 1

KNIGHT MODEL 11C-300

TRADE NAME	Knight, Model 11C-300
SUPPLIER	Allied Radio Corp., 833 W. Jackson Blvd., Chicago 7, Ill.
TYPE SET	AC Operated Combination Phono-Radio AM-FM Superheterodyne with Loop Ant.
TUBES (ELEVEN)	Types, 6BA6 FM RF Amp., 7Q7 AM Converter, 7F8 FM Converter, 7AH7 IF Amp., 7AG7 FM-2nd IF Amp., 7A6 Ratio Det., 7C6 AM Det.-AVC-AF, 7F7 Audio Phase Inv., (2) 7C5 Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-125 Volts AC
RATING	.750 Amp. @ 117 Volts AC
TUNING RANGE -	<u>BROADCAST</u> 540-1700KC <u>FREQ. MOD.</u> 88-108MC

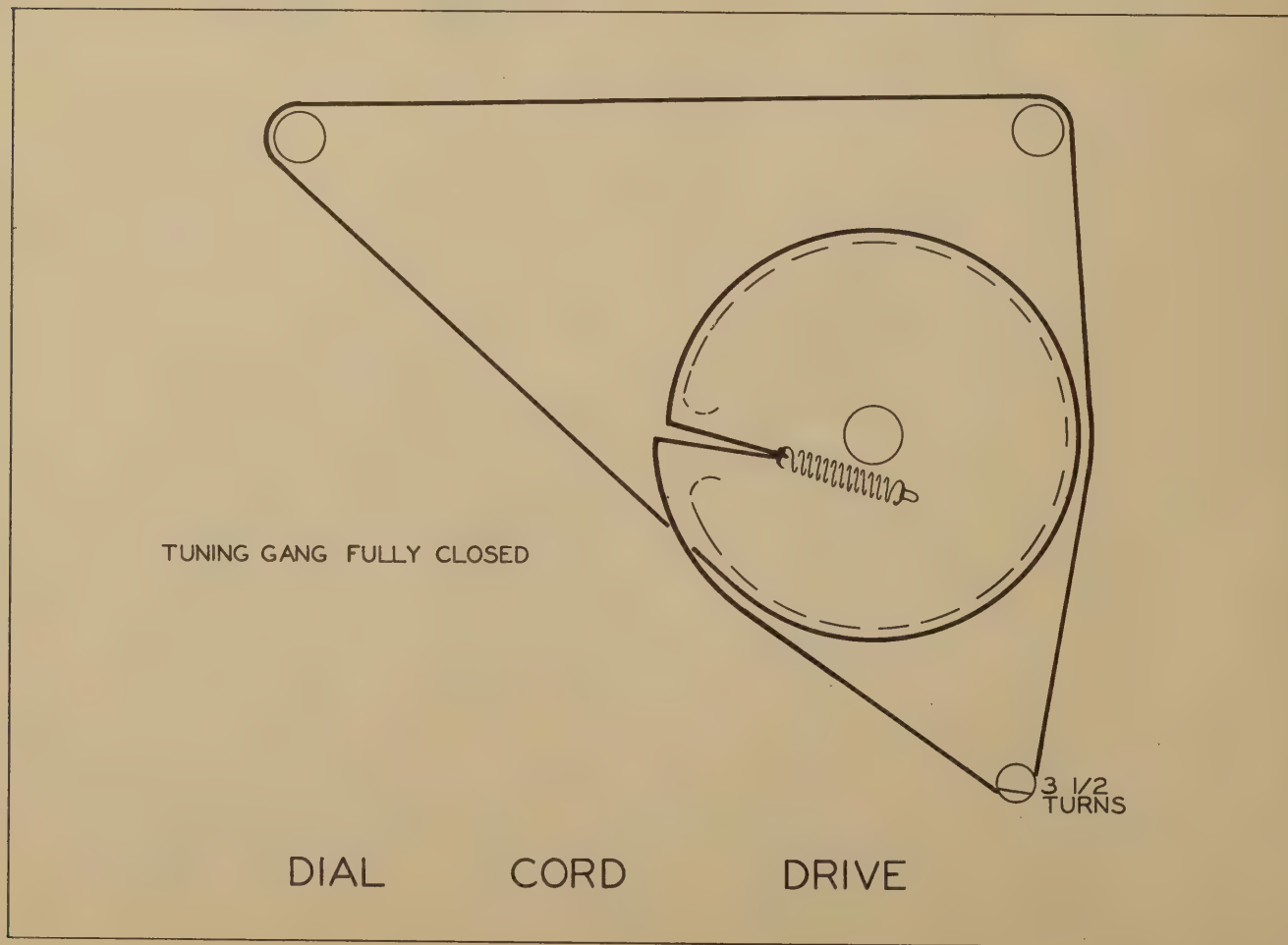
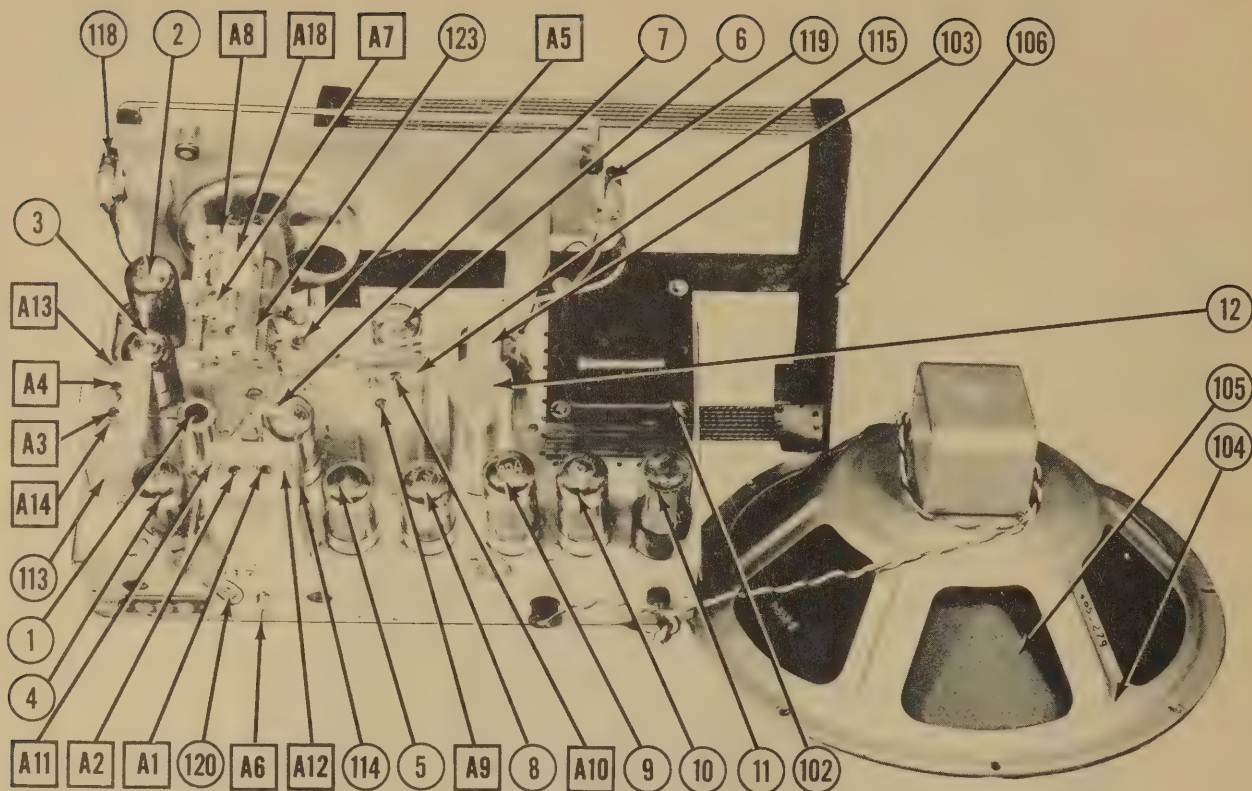
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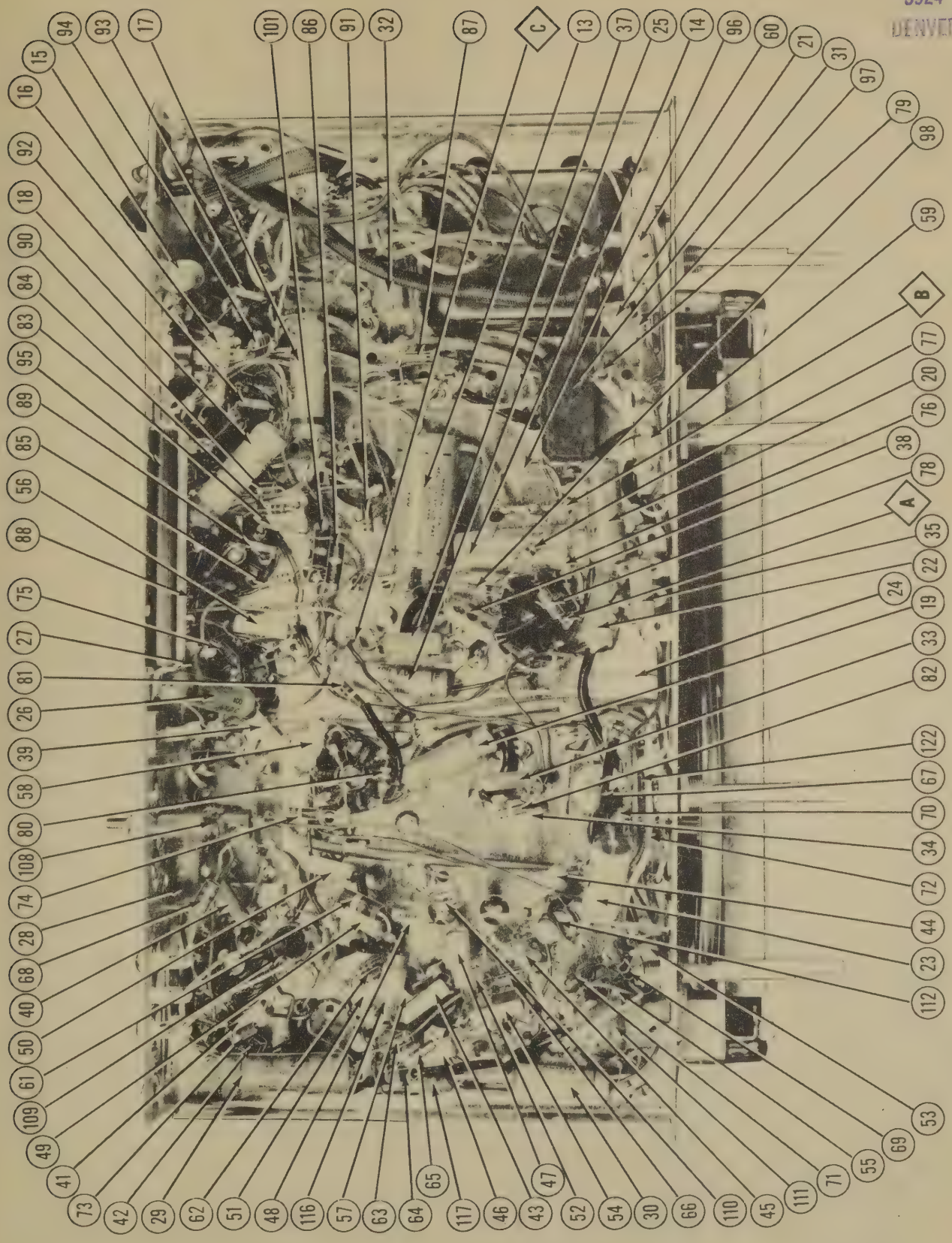
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CHASSIS—TOP VIEW



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KNIGHT MODEL
11C-300
PAGE 3

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		KNIGHT PART No.	STANDARD REPLACEMENT		
1	FM RF Amp.	6BA6	6BA6	7BK	
2	FM Converter	7Q7	7Q7	8AL	
3	FM Converter	7F8	7F8	8BW	
4	FM Amp.	7AH7	7AH7	8V	
5	FM 2nd IF Amp.	7AG7	7AG7	8V	
6	Ratio Det.	7A6	7A6	7AJ	
7	AM Det.-AVC-AF	7C6	7C6	8W	
8	Audio Phase Inv.	7F7	7F7	8AC	
9	Power Output	7D5	7D5	6AA	
10	Power Output	7C5	7C5	6AA	
11	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		KNIGHT PART No.	HALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.
12A	40		FP238	DY-2X40-450	EL-240	AF98J
12B	40					
13	12		TC62	M-10-350	UT-123	PRS-350-12
14	4		TP405		UT-42	BR-425
15	.002		TP405	S-6-002	TC-22	PRS-250-4
16	.002		TP405	S-4-05	TC-22	TC-22
17	.05		TP426	S-4-05	TC-15	TC-15
18	.05		TP426	S-4-05	TC-15	TC-15
19	.01		TP421	S-4-01	TC-11	TC-11
20	.05		TP426	S-4-05	TC-15	TC-15
21	.02		TP423	S-4-02	TC-12	TC-12
22	.05		TP426	S-4-05	TC-15	TC-15
23	.05		TP426	S-4-05	TC-15	TC-15
24	.5		TP431	SDH-4-5	TC-5	TC-5
25	.02		TP423	S-4-02	TC-12	TC-12
26	.01		TP421	S-4-01	TC-11	TC-11
27	.01					
28	.01		TP421	S-4-01	TC-11	TC-11
29	.1		TP428	S-4-1	TC-1	TC-1
30	.02		TP423	S-4-02	TC-12	TC-12
31	.05		TP426	S-4-05	TC-15	TC-15
32	.05		TP426	S-4-05	TC-15	TC-15
33	.25		HC240	M0.5-325	1FM-325	1FM-325
34	250		HC240	M0.5-325	1FM-325	1FM-325
35	6800					
36	1500		MCE461	MW.5-23	1FM-23	1W5D3
37	3000		MC240	M0.5-325	1FM-325	5W5T25
38	250					
39	150		MC235	M0.5-31	1FM-31	5W5T1
40	100					
41	150		MC235	M0.5-31	1FM-31	5W5T1
42	100					
43	150		MC235	M0.5-31	1FM-31	5W5T1
44	150					
45	24		MC220	M08.5-425	MS-425	5W5Q25
46	1500					
47	1500					
48	45					
49	1500					
50	1500					
51	2000		MC457	MW.5-22	1FM-22	1W5D2
52	2					
53	500		MC245	M0.5-35	1FM-35	5W5T5
54	500					
55	1500					
56	1500					
57	1500					
58	1500					
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90	1500					
91	1500					
92	1500					
93	1500					
94	1500					
95	1500					
96	1500					
97	1500					
98	1500					
99	1500					
100	1500					

Note-Not used in all models.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		KNIGHT PART No.	JENSEN PART No.	
104	FIELD PM	VC IMP.	ST-1021	Replace output transformer to match 8-8Ω voice coil.
105	100W DIA.	3.6Ω	Mod. PL2-S	
106	11-7/8"	VC DIA.		
107	1"	1"		NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	KNIGHT PART No.	WEISSNER PART No.	
106	Loop Ant.		.3Ω			
107	FM Ant.		.2Ω			
108	BC Ant. Coil		.2Ω			
109	FM Ant. Coil		.2Ω			
110	FM RF Coil		.2Ω			
111	BC Osc. Coil		.3Ω			
112	FM Osc. Coil		.2Ω			
113	FM Input IF		.2Ω			
114	AM Output IF		.1Ω			
115	Ratio Det.		.1Ω			
116	RF Croke		.3Ω			
117	"		.5Ω			
118	"		.5Ω			
119	"		.5Ω			
120	"		.5Ω			

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	KNIGHT PART No.	
118	rayonet	6-8	0.15	Brown		Type 47
120	"					

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA	REMARKS
	KNIGHT PART No.	
121	1-70	

MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
122	Switch		Band-Phono
123	Tuning Cap.		AM (47-506 MF, 47-506 MWF)

PAIRS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	REPLACEMENT DATA			INSTALLATION NOTES
	RATING	KNIGHT PART No.	CLAROSTAT PART No.	
RESISTANCE	WATTS			
59A 500K	1/2	TM233	T-88	Volume Control
59B 1 Meg.	1/2	MR53	Not Req.	Attach to 59A per instructions
60A 1 Meg.	1/2	MR53	M-63-4	Tone Control
60B 1 Meg.	1/2	MR53	Not Req.	Attach to 60A per instructions
60C Switch		M26	SW-A	

RESISTORS

ITEM No.	REPLACEMENT DATA			IDENTIFICATION CODES
	RATING	KNIGHT PART No.	IRC PART No.	
RESISTANCE	WATTS			
61 100K	1	BM-1-100	Br.-Blk.-Br. FM RF Cathode	
62 22K	1	BTA-22K	Red-Red-Or. FM RF Screen Dropping	
63 470K	1	BTS-470K	Yl.-Vi.-Yl. FM Converter Grid	
64 47K	1	BM-4-47	Yl.-Vi.-Blk. FM Converter Cathode	
65 470K	1	BTS-470K	Yl.-Vi.-Br. FM Converter Cathode	
66 22K	1	BTS-22K	Red-Red-Or. FM Oscillator Grid	
67 2200K	1	BTS-2200	Red-Red-Red FM Oscillator Plate Decoupling	
68 1000K	1	BTS-1000	Br.-Blk.-Red Antenna Loading	
69 470K	1	BTS-470K	Yl.-Vi.-Yl. AM Converter Grid	
70 15K	1	BTA-15K	Br.-Gm.-Or. AM Converter Screen Dropping	
71 22K	1	BTS-22K	Red-Red-Or. AM Oscillator Grid	
72 2.2 Meg.	1	BM-2-2 Meg.	Br.-Br.-Br. 1st IF Cathode	
73 110K	1	BTA-110K	Yl.-Vi.-Yl. Diode Load	
74 470K	1	BTS-470K	Br.-Blk.-Br. 2nd IF Cathode	
75 10K	1	BTS-10K	Br.-Blk.-Or. Ratio Detector Load	
76 10K	1	BTS-10K	Br.-Blk.-Or. Ratio Detector Load	
77 10K	1	BTS-10K	Red-Red-Yl. AVC Network	
78 220K	1	BTS-220K	Br.-Blk.-Or. Tone Compensation	
79 10K	1	BTS-10K	Or.-Or.-Gm. AF Grid	
80 3.3 Meg.	1	BTS-3.3 Meg.	Red-Red-Yl. AF Plate Load	
81 220K	1	BTS-220K	Yl.-Vi.-Yl. Tone Compensation	
82 470K	1	BTS-470K	Red-Red-Yl. 2nd AF Grid	
83 220K	1	BTS-220K	Red-Red-Yl. 2nd AF Plate Load	
84 220K	1	BTS-220K	Red-Red-Red 2nd AF Cathode	
85 2200K	1	BTS-2200	Br.-Blk.-Blk. Feedback	
86 10K	1	BM-1-100	Br.-Blk.-Br. Phase Inverter Cathode	
87 100K	1	BTS-100K	Yl.-Vi.-Yl. Phase Inverter Grid	
88 100K	1	BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load	
89 470K	1	BTS-470K	Red-Red-Red Decoupling	
90 100K	1	BTS-100K	Red-Red-Yl. Output Grid	
91 2200K	1	BTS-2200	Red-Red-Yl. Output Cathode - See Note 1	
92 220K	1	BTS-220K	Yl.-Vi.-Yl. Ratio Detector Bias	
93 220K	1	BTS-220K	Red-Red-Or. Tone Compensation	
94 220K	1	AB-2000	Br.-Blk.-Yl. Series Test Jack	
95 2200K	1	BTS-2200	Red-Red-Orn. Series Phono	
96 470K	1	BTS-470K	Br.-Blk.-Yl. Phono Shunt	
97 22K	1	BTS-22K	Br.-Blk.-Blk. Feedback - See Note 2	
98 100K	1	BTS-100K		
99 2.2 Meg.	1	BTS-2.2 Meg.		
100 100K	1	BM-1-100		
101 10K	1	BM-1-100		

Note 1 - Some models use two 470K resistors in parallel.
Note 2 - Not used in all models.

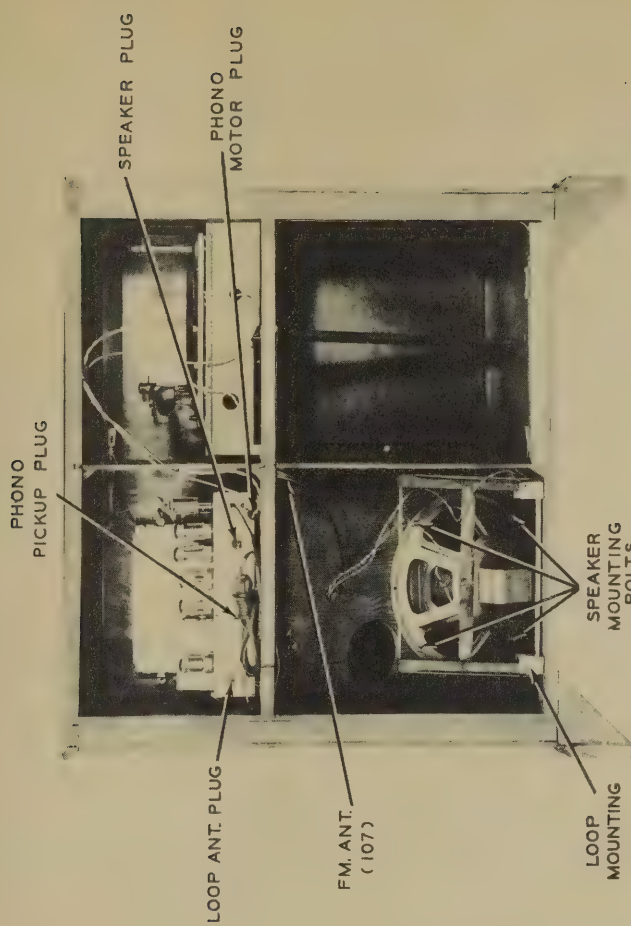
TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	SEC. 3	KNIGHT PART No.	STANCOR PART No.
102	117V AC 620V CT @ .75A	5.0V AC 6.3V AC @ 3.2A	2.0A @ 3.2A		P-6013	T22R05

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		
	IMPEDANCE	DC RES.	PRI. SEC.	KNIGHT PART No.	STANCOR PART No.	THORDARSON PART No.
103	4000 3.6K 540K 2 CT			A-3823	T22S60*	A-2901

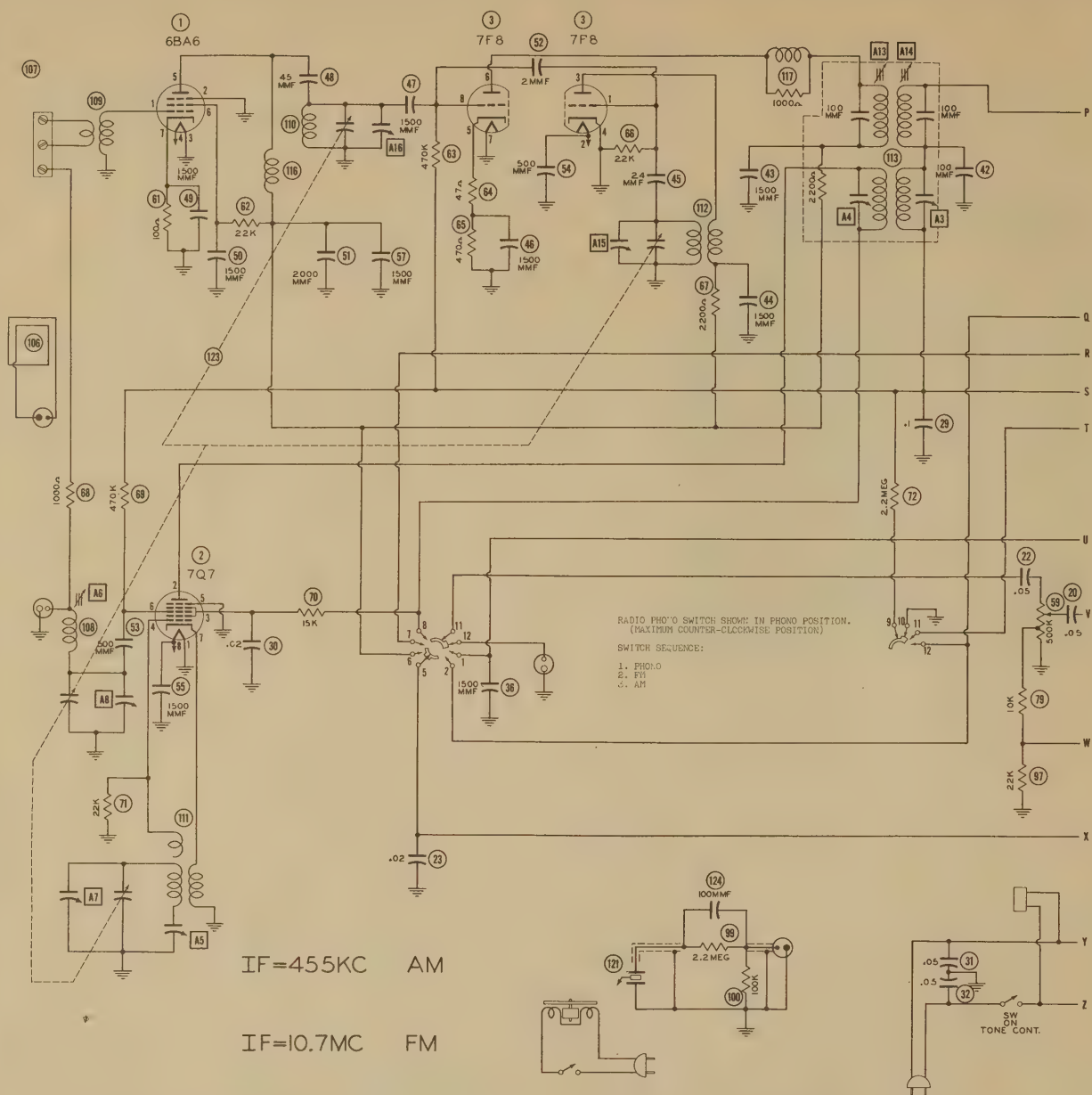
*Drill one new mounting hole.



DISASSEMBLY INSTRUCTIONS

1. Remove four control knobs.
2. Remove phono pickup plug from chassis.
3. Disconnect phono motor plug.
4. Remove speaker plug from chassis.
5. Remove loop antenna plug from chassis.
6. Remove FM dipole leads from chassis.
7. Remove two wood screws holding loop antenna in cabinet. Remove loop from cabinet.
8. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.
9. Remove one wood screw holding cabinet light.
10. Remove four screws holding chassis in cabinet. Remove chassis from cabinet.

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VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	OV.	OV.	OV.	6.3VAC	220VDC	127VDC	1.6VDC	-
2	7F7	OV.	250VDC	115VDC	-14VDC	OV.	-2VDC	OV.	6.3VAC
3	7F8	-6.4VDC	OV.	168VDC	OV.	2.3VDC	210VDC	6.3VAC	OV.
4	7AH7	OV.	235VDC	235VDC	OV.	OV.	-1VDC	1VDC	6.3VAC
5	7AC7	OV.	270VDC	270VDC	OV.	OV.	1.2VDC	6.3VAC	OV.
6	7A6	OV.	2.6VDC	OV.	-3VDC	OV.	1.8VDC	OV.	6.3VAC
7	7C6	OV.	150VDC	-7VDC	OV.	-1VDC	-3VDC	OV.	6.3VAC
8	7F7	OV.	115VDC	170VDC	115VDC	OV.	115VDC	1.5VDC	6.3VAC
9	7C5	OV.	310VDC	250VDC	OV.	OV.	OV.	16VDC	6.3VAC
10	7C5	OV.	310VDC	250VDC	OV.	OV.	OV.	16VDC	6.3VAC
11	5Y3GT	OV.	310VDC	OV.	310VAC	OV.	310VAC	OV.	310VDC

† TAKEN WITH VACUUM TUBE VOLTMETER.

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	OV.	OV.	OV.	.1Ω	40KΩ	60KΩ	100Ω	-
2	7F7	OV.	40KΩ	50KΩ	22KΩ	OV.	1 Meg.	.3Ω	.1Ω
3	7F8	2.2KΩ	OV.	40KΩ	OV.	50KΩ	40KΩ	.1Ω	1.1 Meg.
4	7AH7	OV.	40KΩ	40KΩ	OV.	OV.	50KΩ	1.0Ω	.1Ω
5	7AC7	OV.	40KΩ	40KΩ	OV.	OV.	190KΩ	100Ω	.1Ω
6	7A6	OV.	40KΩ	INF.	60KΩ	OV.	40KΩ	INF.	.1Ω
7	7C6	OV.	250KΩ	3 Meg.	OV.	40KΩ	60KΩ	OV.	.1Ω
8	7F7	OV.	110KΩ	140KΩ	260KΩ	250KΩ	260KΩ	2.3KΩ	.1Ω
9	7C5	OV.	40KΩ	40KΩ	INF.	INF.	210KΩ	250Ω	.1Ω
10	7C5	OV.	40KΩ	40KΩ	INF.	INF.	230KΩ	250Ω	.1Ω
11	5Y3GT	INF.	40KΩ	INF.	150Ω	INF.	160Ω	INF.	40KΩ

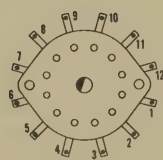
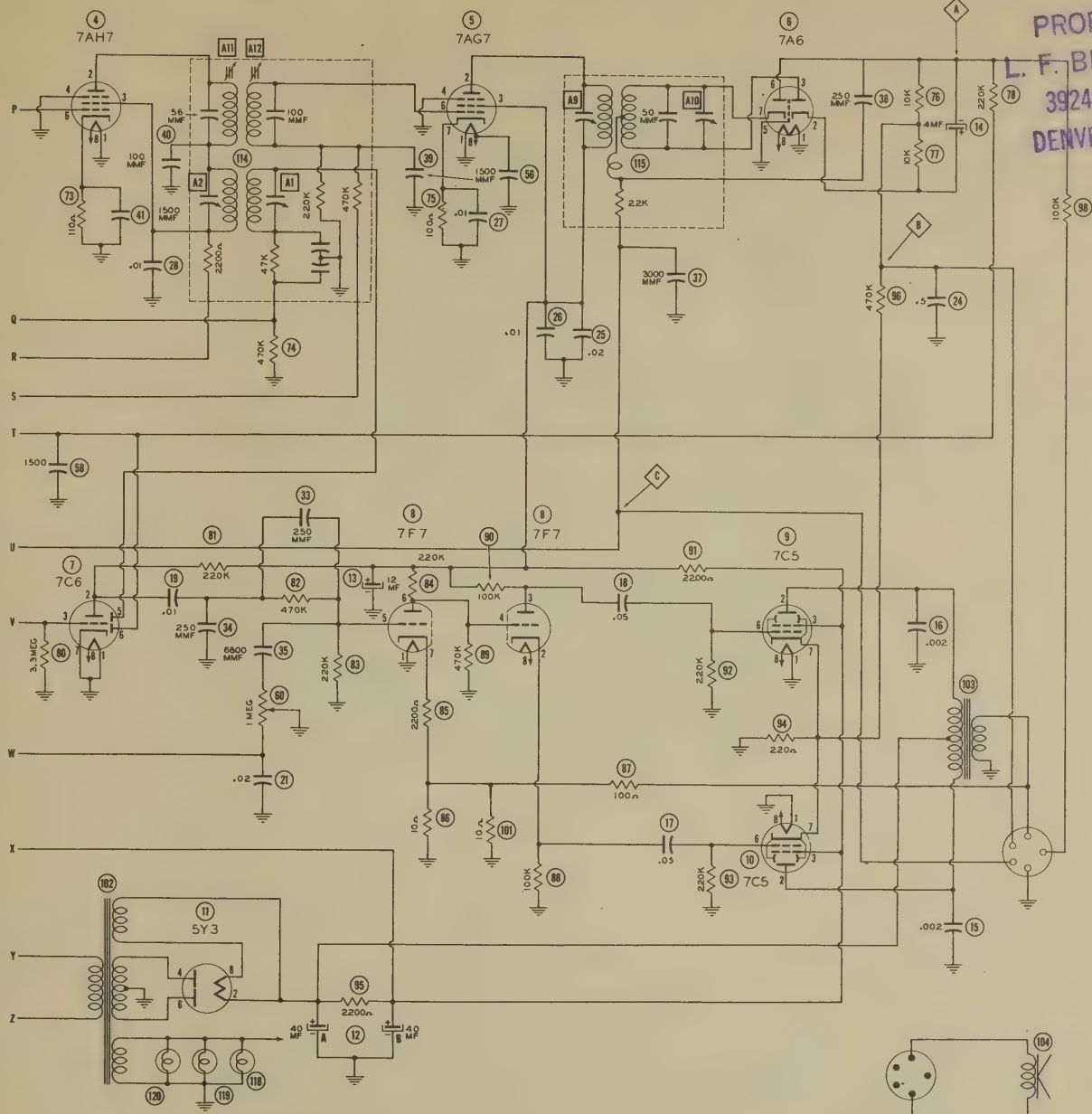
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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4719-12

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



STAGE GAIN MEASUREMENTS		
CONV. GAIN	40X	IN 600K OUT 455KC
1st IF TRANS.	.5X	455KC
IF TUBE	160X	455KC
2nd IF TRANS.	.7X	455KC
1st AUDIO	40X	400~
2nd AUDIO	5X	400~
OUTPUT	20X	400~

ROTOFACT STANDARD NOTATION SCHEMATIC
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4719-12

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

KNIGHT MODEL
11C-300

PAGE 7

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
To set pointer turn tuning cap. fully closed and set pointer to last reference line on broadcast band at low freq. end of dial.							
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.							
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.							

AM ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .01 MFD	High side to front stator of tuning cap. Low side to chassis.	455KC	AM (fully clock-wise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
2 200MMFD	High side to "BC" term. on ant. term. board. Low side to chassis.	600KC	"	600KC	"	A5,A6	" " " " "
3 200MMFD	"	1600KC	"	1600KC	"	A7,A8	Adjust for maximum output. Repeat Steps 2 & 3 until no further improvement can be made.

FM ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4 .01 MFD	High side to Pin 6 (grid) 7AG7. Low side to chassis.	10.7MC (unmodulated)	FM (center position)	Tuning cap. fully open.	DC probe to Point A. Common lead to Point B.	A9	Adjust for maximum deflection.
5 .01 MFD	"	"	"	"	DC probe to Point C. Common lead to Point B.	A10	Adjust for zero deflection.
6 .01 MFD	High side to Pin 6 (grid) 7AH7. Low side to chassis.	"	"	"	DC probe to Point A. Common lead to Point B.	A11, A12.	Preset A12 by turning it maximum number of turns possible counter-clockwise. Adjust A11 for maximum deflection. Then adjust A12 for maximum deflection. Attenuate output of sig. gen. to maintain a meter reading of 2 to 3 volts.
7 .01 MFD	High side to Pin 8 (grid) 7F8. Low side to chassis.	"	"	"	"	A13, A14	Preset A14 by turning it maximum number of turns possible counterclockwise. Adjust A13 for maximum deflection then adjust A14 for maximum deflection. Attenuate output of sig. gen. to maintain meter reading of 2 to 3 volts. Do not readjust any of the IF adjustments.
8 2 150Ω carbon res.	High side to "A1" terminals of ext. ant. term. board with 150Ω in series with each lead.	106MC	"	106MC	"	A15, A16	Adjust for maximum deflection.

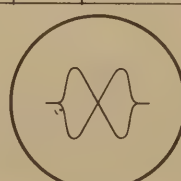
FM ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Modulate signal with 60 \sim , 450KC sweep. Use 120 \sim sawtooth sweep for horizontal deflection.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4 .01 MFD	High side to Pin 6 (grid) 7AG7. Low side to chassis.	10.7MC (Freq. modulated)	FM (center position)	Tuning cap. fully open.	Vertical input to Point A. Ground to chassis.	A9	Disconnect 4 MFD cap. from point A. Adjust for maximum amplitude, symmetry and coincidence per pattern A.
5 .01 MFD	High side to Pin 6 (grid) 7AH7. Low side to chassis.	"	"	"	"	A11,A12	Adjust for maximum amplitude, symmetry and coincidence per Pattern A.
6 .01 MFD	High side to Pin 8 (grid) 7F8. Low side to chassis.	"	"	"	"	A13,A14	Adjust for maximum amplitude. Reconnect 4 MFD. capacitor to Point A.
7 .01 MFD	High side to Pin 6 (grid) 7AG7. Low side to chassis.	"	"	"	Vertical input to Point C. Ground to chassis.	A10	Adjust for maximum amplitude and straightness of crossover lines with crossover at center of pattern per Pattern B.
8 2 150Ω carbon res.	High side to "A1" terminals of ext. ant. term. board with 150Ω in series with each lead.	106MC	"	106MC	Vertical input to Point A. Ground to chassis.	A15	Disconnect 4 MFD cap. from Point A. Adjust for coincidence.
9 "	"	"	"	Tune for coincidence.	"	A16	Adjust for maximum amplitude. Reconnect 4 MFD cap.



PATTERN A



PATTERN B

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

MAJESTIC MODEL
7YR752 (Ch. 7B04A)

MICROPHONE

SELECTOR
SWITCH

VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

MAJESTIC MODEL 7YR752

MAJESTIC MODEL
7YR752 (Ch. 7B04A)

TRADE NAME	Majestic, Model 7YR752 (Ch. 7B04A)						
MANUFACTURER	Majestic Radio & Tel. Corp., Elgin, Ill.						
TYPE SET	AC Operated Phono-Radio Combination Superheterodyne with Wire Recorder						
TUBES (SEVEN)	Types, 12SA7 Converter, 12SK7GT IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 12BA6 AF Amp., 50B5 Bias Osc., 35Z5GT Rectifier.						
POWER SUPPLY	110-120 Volts AC			RATING	.380 Amp. @ 117 Volts AC		
TUNING RANGE—BROADCAST	540-1650KC						
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	SELECT SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD.	High side to Pin 8 (grid) 12SA7. Low side to B-.	455KC	Radio	600KC	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
	Loop	1500KC	"	1500KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. The trimmer opposite A5 is a factory adjustment and ordinarily need not be adjusted.
	"	"	"	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MAJESTIC PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	AF Amp.	12BA6	12BA6	7BK	
6	Bias Osc.	50B5	50B5	7B2	
7	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MAJESTIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
8A	40 CAP. 150 VOLT	19-24	2NS14	DSB-2X40-150	TA-240	Filter - Red
B	20 150	19-32	TC45	M-20-150	UT-201	" - Blue
9	20 150	19-36	TC45	M-100-12	UHC-112	Output Cathode Bypass
10	100 10	19-25	FP306*	DY-4020-150	EL-24	Filter
11A	40 150					AF Cathode Bypass
B	20 150					Output Cathode Bypass
12	100 10	19-36	TP425	M-100-12	UHC-112	Audio Coupling
13	.04 400	5-58	TP421	S-6-04	TC-14	AVC Filter
14	.01 200	015-5	TP421	S-4-01	TC-11	IF Cathode Bypass
15	.002 600	017-2	TP426	S-6-002	TC-22	Ext. Ant. Isolation
16	.05 200	015-8	TP426	S-4-05	TC-15	RF Bypass
17	.01 200	015-5	TP421	S-4-01	TC-11	Line Filter
18	.05 200	015-8	TP426	S-4-05	TC-15	AF Screen Bypass
19	.05 200	015-8	TP421	S-4-01	TC-11	Prono Isolation
20	.01 200	015-8	TP426	S-4-05	TC-15	Indicator Coupling
21	.05 200	015-8	TP421	S-4-01	TC-11	AF Plate Bypass
22	.05 200	015-8	TP426	MPH-6-05	TC-15	Diode RF Filter
23	.01 400	018-9	TP421	S-4-01	TC-11	Vol. Cont. RF Bypass
24	.01 400	018-9	TP426	S-4-02	TC-2	Prono Shunt Cer.
25	.05 200	018-9	TP426	S-4-05	TC-15	Bias Osc. Feedback
26	.05 200	018-9	TP426	S-4-02	TC-2	Fixed Tuning Capacitor
27	.005 600	017-4	TP426	S-6-005	TC-25	
28	.001 600	017-1	TP426	S-6-001	TC-21	
29	220 500	020-53	MC237	MO.5-32	1468-0002	
30	220 500	020-53	MC237	MO.5-32	1468-0002	
31	220 500	020-53	MC237	MO.5-32	1468-0002	
32	700 500	6-228	MC255	MO.3-37	1468-001	
33	1000 300	6-230	MC256	MO.3-21	1467-0015	
34	1500 500	021-24	MC256	MO.5-215	1467-0015	
35	5500 500	021-56				

*Do not use bypass section.

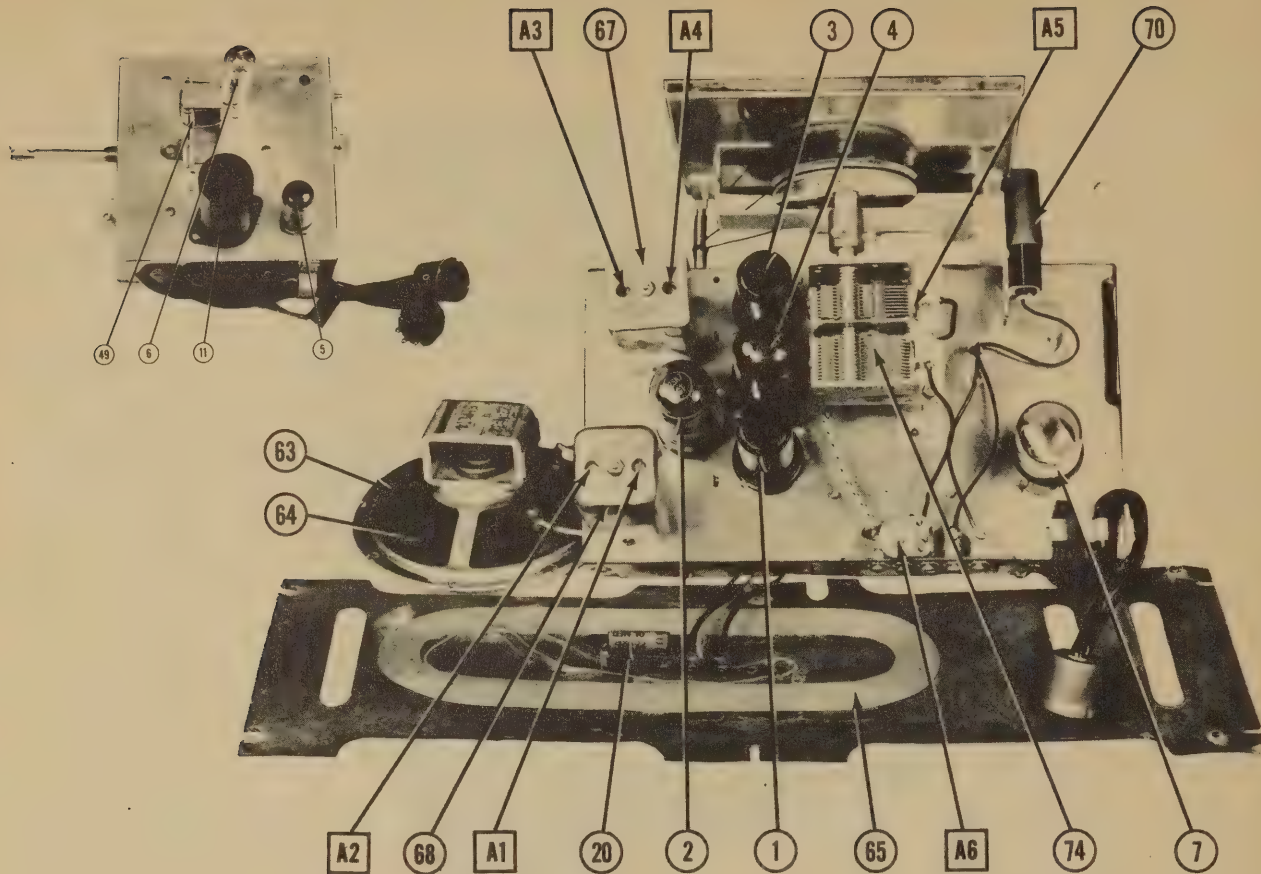
†Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MAJESTIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
36A	500KΩ B Shaft	13-14	MC401	D13-133	AM-60-Z	Volume Control
B	Switch	Not Req.	Not Req.	Not Req.	KSS-3	Attach to 36A per Instructions
C	Switch	Not Req.	Not Req.	Not Req.	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		MAJESTIC PART No.	IRC PART No.	
37	22KΩ	02-143	BTS-22K	Red-Red-Or. Oscillator Grid
38	220Ω	02-100	BTS-220	Red-Red-Red Screen Dropping
39	220KΩ	02-185	BTS-220K	Red-Red-VI. Line Isolation
40	3.3 Meg.	02-234	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
41	22KΩ	02-143	BTS-22K	Red-Red-VI. Diode Filter
42	10 Meg.	02-255	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
43	330KΩ	02-192	BTS-330K	Or.-Or.-VI. AF Plate Load
44	470KΩ	02-199	BTS-470K	VI.-VI.-VI. Output Grid



CHASSIS—BOTTOM VIEW

(16)

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PART No.		
			MAJESTIC	IRC	
45	150Ω	1	BW-1-150		Br.-Grn.-Br. Output Cathode
46	1200Ω	1	B7A-1200		Br.-Red-Red-Filter
47	22Ω	1	02-17		Red-Red-Bik. Surge Limiter
		1	BW-4-22		



THE COOPERATION OF THE MANUFACTURER OF THIS

The stage gain measured values listed above are approximate value average operative stage, rather than an absolute value. It should be in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, kind and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery substituted for measurement.

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MAJESTIC PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	8R	
2	If Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	AF Amp.	12BA6	12BA6	7BK	
6	Bias Osc.	50B5	50B5	7BZ	
7	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MAJESTIC PART No.	MALLORY PART No.	SOLAR PART No.	AEROVOX PART No.	
8A	CAP. 40	19-24	2N514	DSB-2X40-150	PRSA-150-20	Filter - Red
B	20	150			40	
9	20	150				
10	100	19-32	TC45	M-20-150	PRB-150-20	Output Cathode Bypass
11A	40	19-36	FP306*	UHO-112	40	Filter
B	20	150		EL-24	AF444D†	
12	100	19-36		M-100-12		AF Cathode Bypass
13	.04	5-58	TP425	TC-14	464-04	Output Cathode Bypass
14	.01	200	TP421	S-4-01	484-01	Audio Coupling
15	.002	600	TP405	TC-22	684-002	AVC Filter
16	.05	200	TP426	S-6-002	484-05	IF Cathode Bypass
17	.01	200	TP421	TC-15	484-01	Conv. Screen Bypass
18	.05	200	TP426	S-4-01	484-05	Line Isolation
19	.05	200	TP421	TC-15	484-01	Ext. Ant. Isolation
20	.01	200	TP426	S-4-01	484-05	RF Bypass
21	.05	200	TP421	TC-15	484-01	AF Screen Bypass
22	.05	200	TP426	S-4-01	484-05	Audio Coupling
23	.1	200	TP421	TC-15	484-01	Phono Isolation
24	.01	200	TP426	S-4-01	484-05	Bias Osc. Screen Bypass
25	.05	200	TP421	TC-15	484-01	Indicator Coupling
26	.05	200	TP426	S-4-01	484-05	Audio Coupling
27	.005	600	TP421	TC-15	484-01	AF Plate Bypass
28	.05	400	TP426	S-4-01	484-05	Diode RF Filter
29	.001	600	TP421	TC-15	484-01	Vol. Cont. RF Bypass
30	220	500	MC237	M0.5-32	1468-0002	Phono Shunt Cer.
31	220	500	MC237	M0.5-32	1468-0002	Bias Osc. Feedback
32	700	500	MC255	M0.3-37	1468-001	Fixed Tuning Capacitor
33	1000	300	MC256	MW.3-21	1467-0015	
34	1500	500	MC256	MW.5-215		
35	5600	500	MC256	MW.5-215		

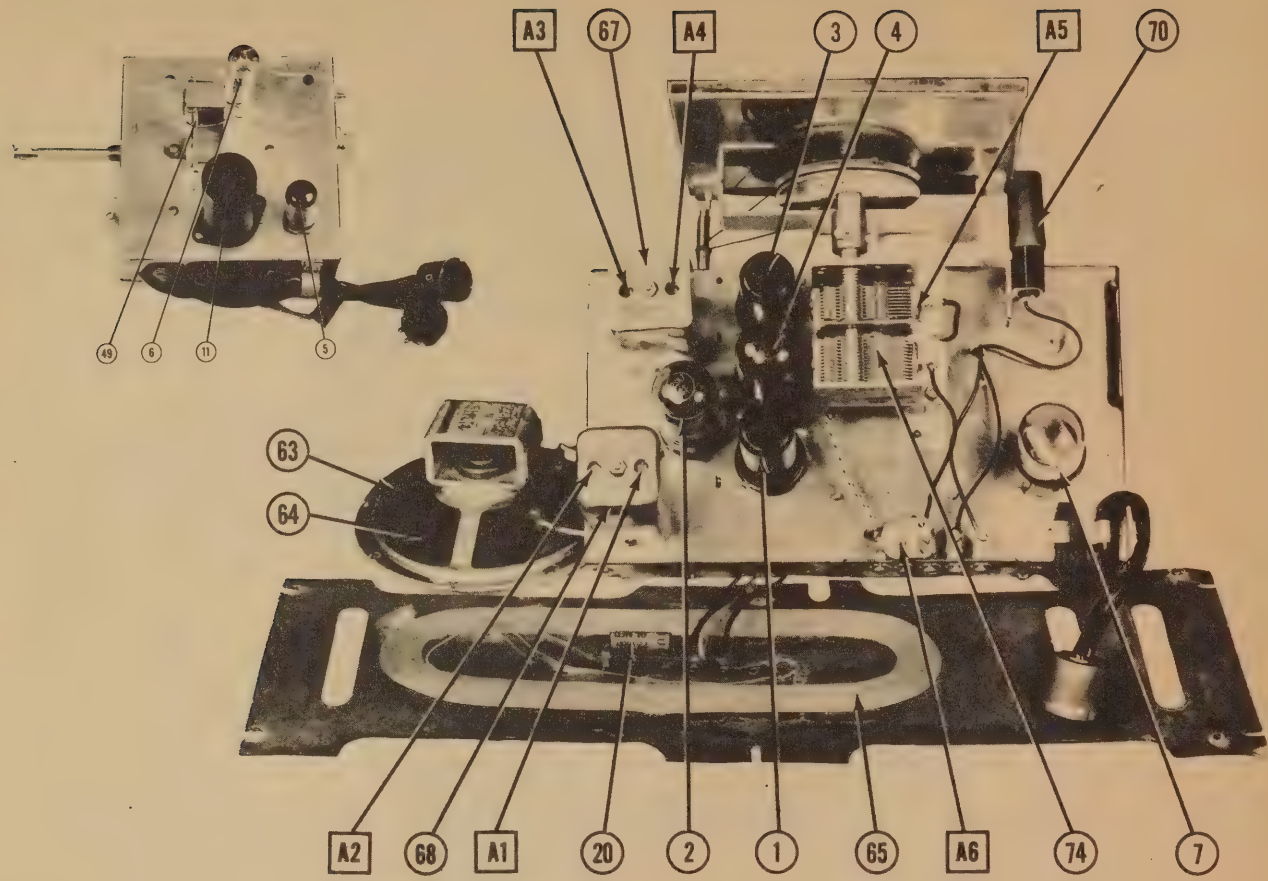
*Do not use bypass section. †Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		MAJESTIC PART No.	MALLORY PART No.	CLAROSTAT PART No.	
36A	500KΩ	13-14	PK401	AM-60-Z	Volume Control
B	Shunt	Not Req.	Not Req.	KSS-6	Attach to 36A per instructions
C	Switch		P25	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		MAJESTIC PART No.	IRC PART No.	
37	22KΩ	02-143	BTS-22K	Red-Red-Or. Oscillator Grid
38	220KΩ	02-100	BTS-220K	Red-Red-Red Screen Dropping
39	220KΩ	02-185	BTS-220K	Red-Red-Yl. Line Isolation
40	3.3 Meg.	02-234	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
41	22KΩ	02-143	BTS-22K	Red-Red-Yl. Diode Filter
42	10 Meg.	02-255	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
43	330KΩ	02-192	BTS-330K	Or.-Or.-Yl. AF Plate Load
44	470KΩ	02-199	BTS-470K	Yl.-Vi.-Yl. Output Grid



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MAJESTIC	IRC	
			PART No.	PART No.	
45	150Ω	1	03-52	BW-1-150	Br.-Grn.-Br. Output Cathode
46	1200Ω	1	03-50	BTA-1200	Br.-Red-Red-Filter
47	22Ω	1	02-17	BW-1-22	Red-Red-Blk. Surge Limiter
48	220Ω	2	04-59	BW-2-220	Red-Red-Br. Filter
49	375Ω		9-335	DHA-400	Line Dropping - See Note 3
50	680KΩ		02-206	BTS-680K	Blue-Gray-Yl. Voltage Divider
51	470KΩ		02-199	BTS-470K	Yl.-Vi.-Yl.
52	150Ω	1	03-52	BW-1-150	Br.-Grn.-Br. Decoupling
53	22KΩ	1		BTS-22K	Red-Red-Or. Pre-Amp. Decoupling - See Note 1
54	2.2 Meg.	1	02-227	BTS-2.2 Meg.	Red-Red-Grn. Pre-Amp. Screen Dropping
55	470KΩ	1	02-199	BTS-470K	Yl.-Vi.-Yl. Pre-Amp. Plate Load
56	2200Ω	1	02-100	BTS-2200	Red-Red-Red Pre-Amp. Cathode
57	470KΩ	1	02-199	BTS-470K	Yl.-Vi.-Yl. Pre-Amp. Grid
58	82KΩ	1	02-167	BTS-82K	Gray-Red-Or. Tone Compensation
59	3Ω	1	9-336	BW-1-3.3	Or.-Blk.-Gold Output Transformer Loading
60	270Ω	1		BW-1-270	Red-Vi.-Br. Parasitic Suppressor - See Note 2
61	22KΩ	1	02-143	BTS-22K	Red-Red-Or. Bias Oscillator Grid

Note 1 - Some models use 120KΩ in this application. IRC replacement BTS-120K.
Note 2 - Some models use 330Ω in this application. IRC replacement BW-1-330.
Note 3 - On IRC replacement set slider at 375Ω from one end.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MAJESTIC	STANCOR	THORDARN	MERIT	
	PRI.	SEC.	PRI.	SEC.	PART No.	PART No.	PART No.	PART No.	
62	2470Ω	3.3Ω	174Ω tapped @ 9Ω	.9Ω	12-20	A-3876#		A-2928#	#Add extra filter to reduce hum level.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	MAJESTIC	JENSEN	
			PART No.	PART No.	
63	PM	3.3Ω	22-32	ST-105	
64	CONE DIA. 4"	VC DIA. 4"		Mod. P5-X	
NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT					

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MAJESTIC	MEISSNER	
				PART No.	PART No.	
65	Loop Ant.	.22	1.7Ω	20-30		
66	Osc. Coil		5.5Ω	3-158	14-1040	Add 50 MFD from grid to high side tuning cap.
67	Input IF	12Ω	12Ω	3-116	16-6658	
68	Output IF	12Ω	12Ω	3-117	16-6660	
69	Bias Osc. Coil	.1Ω	6Ω	S-1572		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MAJESTIC		
					PART No.		
70	Bayonet	6-8	0.15	Brown	26-2		Type 47

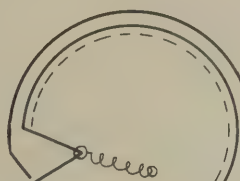
PARTS LIST AND DESCRIPTIONS (Continued)

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA		REMARKS
	MAJESTIC	ASTATIC	
	PART No.	PART No.	
71	140-65	L-71-A	

MISCELLANEOUS

ITEM No.	PART NAME	MAJESTIC PART No.	NOTES
72	Switch	11-75	Selector
73	Indicator	26-19	Neon
74	2 Gang Var. Cap	7-24	(16-447 MFD, 32-197 MFD) 7-21 Alternate
	Trimmer	8-33	Bias Osc. Adj.
	Dial Scale	117-66	
	Pointer	135-14	

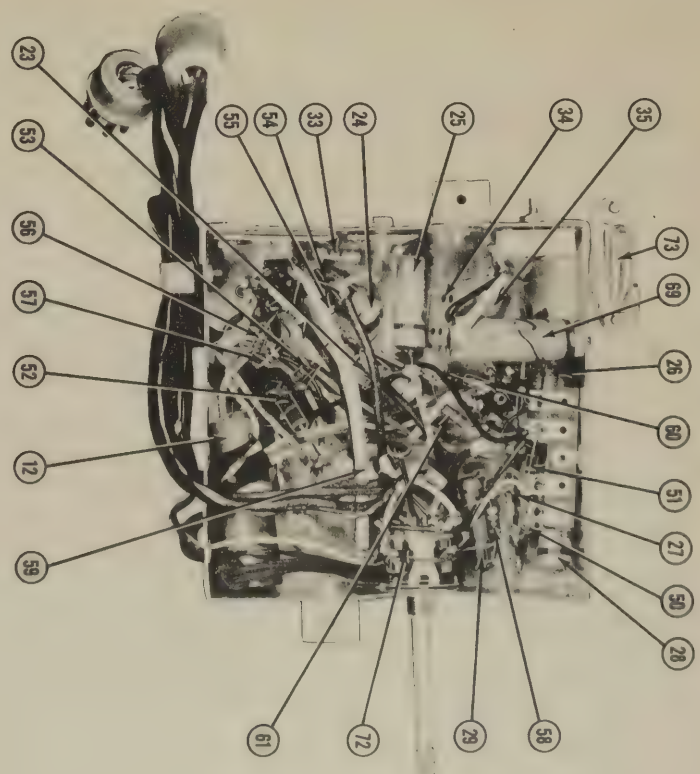
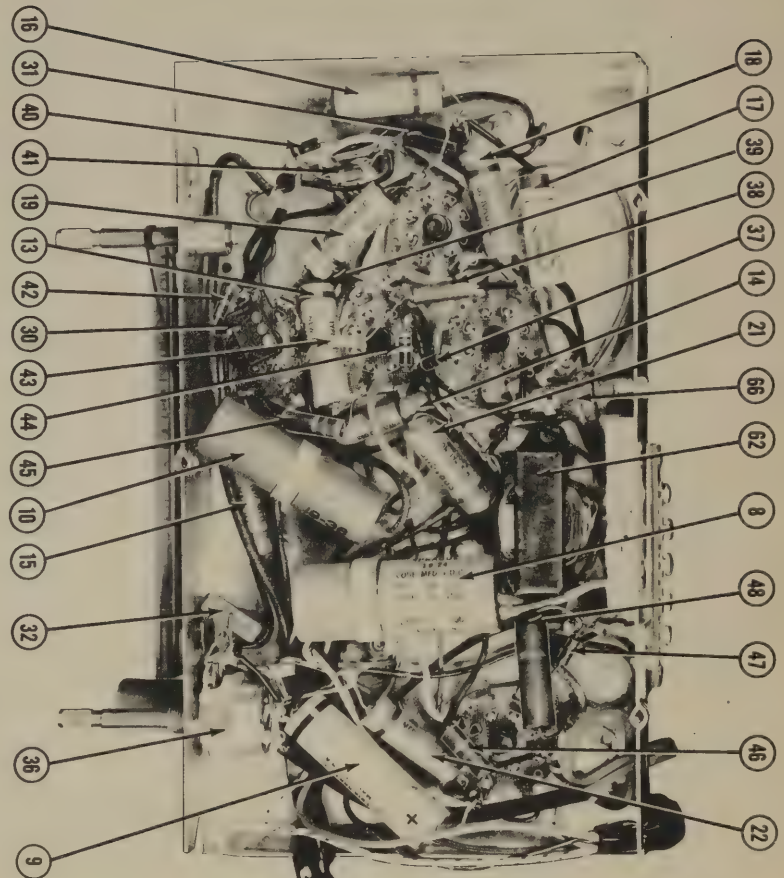


TUNING GANG FULLY CLOSED

2 1/2 TURNS

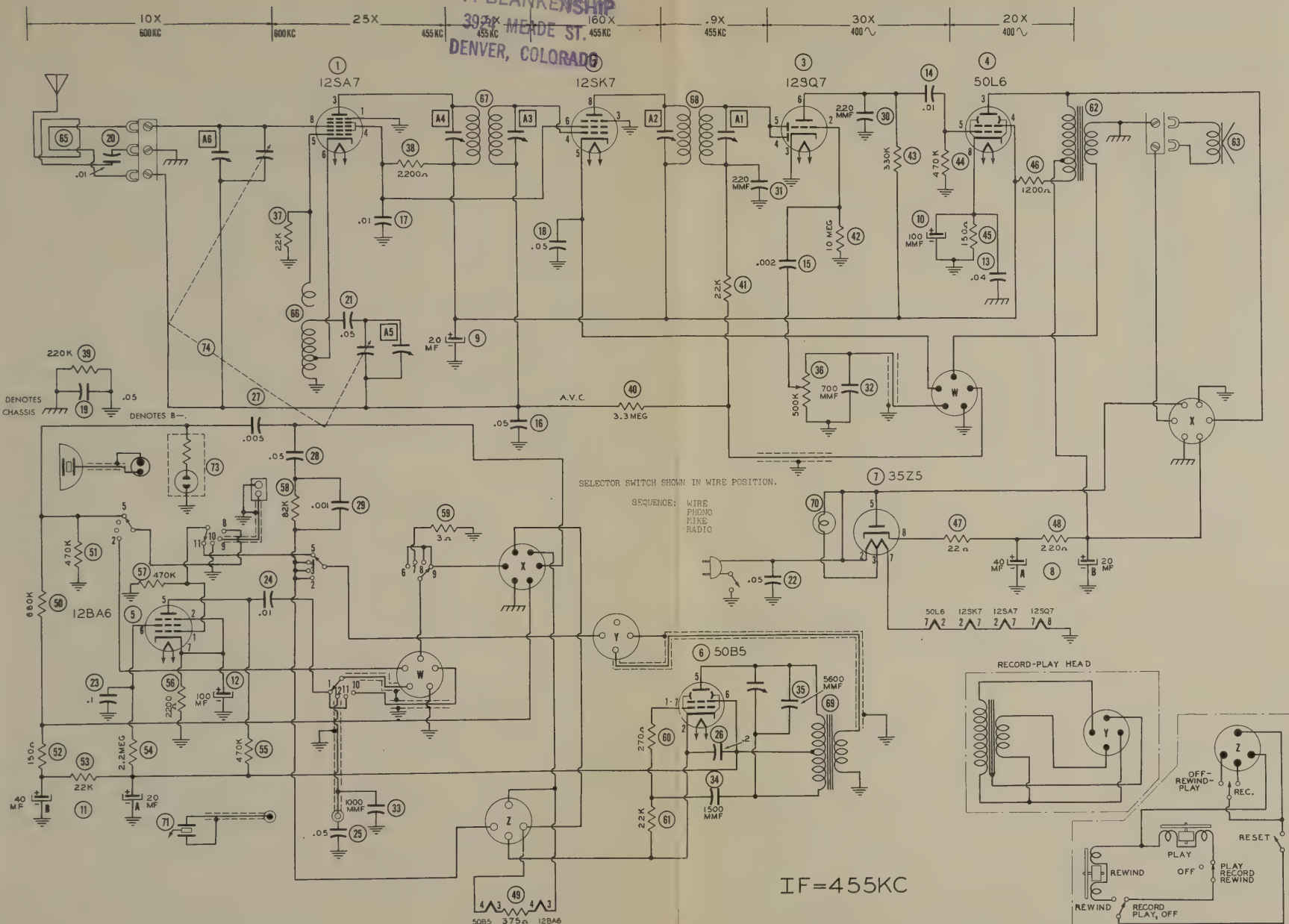
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



CHASSIS—BOTTOM VIEW

PROPERTY OF
L. F. BLANKENSHIP
3928 MEADE ST.
DENVER, COLORADO



VOLTAGE AND RESISTANCE READINGS
TAKEN IN PLAY RADIO POSITION.

Pin	12SA7		12SK7GT	
No.	Volt.	Res.	Volt.	Res.
1	0V.	250K Ω	0V.	250K Ω
2	24VAC	24 Ω	36VAC	36 Ω
3	88VDC	100K Ω	0V.	0 Ω
4	67VDC	100K Ω	-4VDC	4 Meg.
5	-7.8VDC	22K Ω	0V.	0 Ω
6	0V.	.8 Ω	67VDC	100K Ω
7	12VAC	12 Ω	24VAC	24 Ω
8	-8VDC	4 Meg.	88VDC	100K Ω

TAKEN WITH VACUUM TUBE VOLTMETER.

Pin	12SQ7		50L6GT	
No.	Volt.	Res.	Volt.	Res.
1	0V.	250K Ω	0V.	250K Ω
2	.4VDC	10 Meg.	36VAC	36 Ω
3	0V.	0 Ω	105VDC	100K Ω
4	-4VDC	500K Ω	88VDC	100K Ω
5	-4VDC	500K Ω	0V.	450K Ω
6	55VDC	430K Ω	0V.	0 Ω
7	12VAC	12 Ω	87VAC	73 Ω
8	0V.	0 Ω	6.8VDC	150 Ω

READINGS ON TUBES #5 AND 6 TAKEN IN WIRE
RECORD POSITION WITH PIN 2 OF 50B5
CONNECTED TO B-.

Pin	12BA6		50B5	
No.	Volt.	Res.	Volt.	Res.
1	0V.	440K Ω	-26VDC	22K Ω
2	.3VDC	2.2K Ω	0V.	0 Ω
3	0V.	0 Ω	67VAC	115 Ω
4	11VAC	10 Ω	117VAC	90 Ω
5	30VDC	700K Ω	90VDC	100K Ω
6	6VDC	2.5 Meg.	90VDC	100K Ω
7	.3VDC	2.2K Ω	-26VDC	22K Ω

Pin	35Z5GT	
No.	Volt.	Res.
1	112VDC	100K Ω
2	117VAC	90 Ω
3	114VAC	87 Ω
4	88VDC	100K Ω
5	117VAC	90 Ω
6	112VDC	100K Ω
7	87VAC	73 Ω
8	125VDC	100K Ω

RESISTANCE READINGS IN THE B+
CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION
OF THE FILTER CAPACITORS

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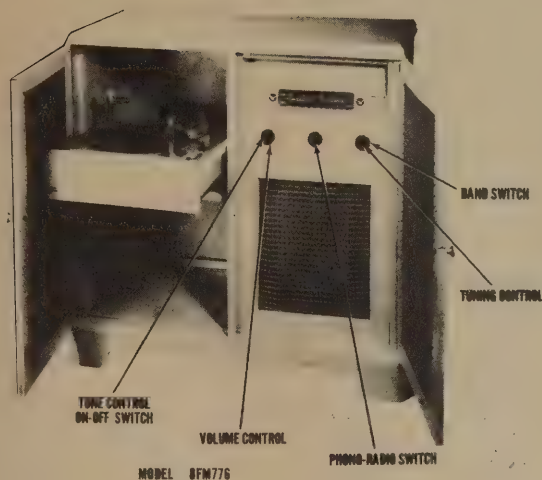
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

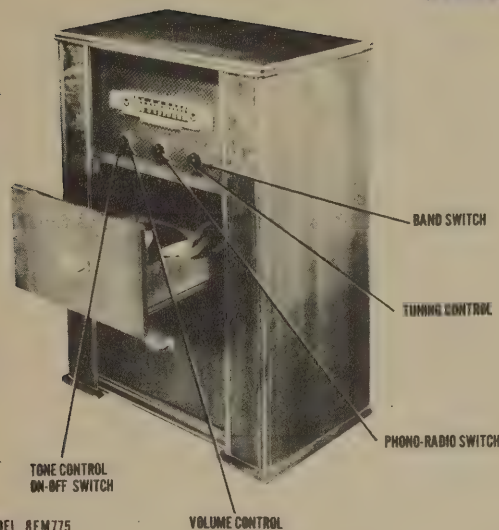
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

4719-13

PROPERTY OF
Hale BROTHERS
2024 MILWAUKEE ST.
DENVER, COLORADO



MODEL 8FM776



MODEL 8FM775

TRADE NAME	Majestic, Models 8FM775 (Ch. 8B08D), 8FM776 (Ch. 8B07D)		
MANUFACTURER	Majestic Radio & Tel. Corp., Elgin, Ill.		
TYPE SET	AC Operated FM-AM Combination Phono-Radio Superheterodyne with Loop Antenna		
TUBES (EIGHT)	Types, 6BA6 RF Amp., 6BE6 Converter, 6SG7 1st IF Amp., 6SG7 2nd IF Amp., 6SH7 Limiter, 68SGT Disc.-Det.-AVC-AF, 25L6GT Power Output, 25Z6GT Rectifier.		
POWER SUPPLY	110-120 Volts AC	RATING	.510 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1630KC	FREQ. MOD.	87.5-109MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.
Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .05 MFD.	High side to rear "AM" stat of Tuning Cap. Low side to chassis.	455KC	BC (counter-clock-wise)	600KC	Across voice coil	A1,A2, A3,A4, A5,A6.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2 "	"	"	"	"	"	A7	Adjust for minimum output.
3 "	Loop	1500KC	"	1500KC	"	A8	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4 "	"	"	"	Tune for maximum output.	"	A9	Adjust for maximum output.
5 "	"	600KC	"	"	"	A10	Rock tuning cap. and adjust for maximum output. Repeat Steps 3, 4 & 5 until no further improvement can be made.

FOR FM ALIGNMENT SEE LAST PAGE OF THIS FOLDER.

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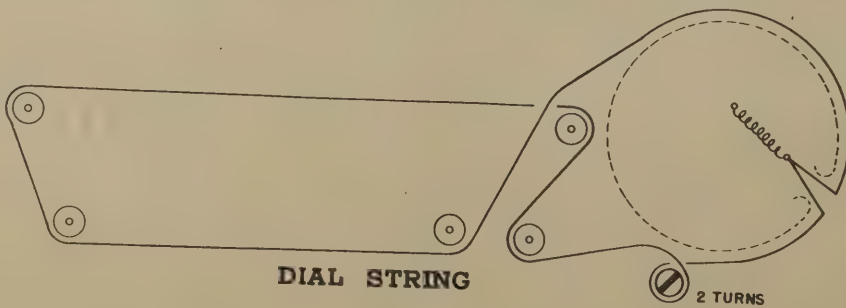
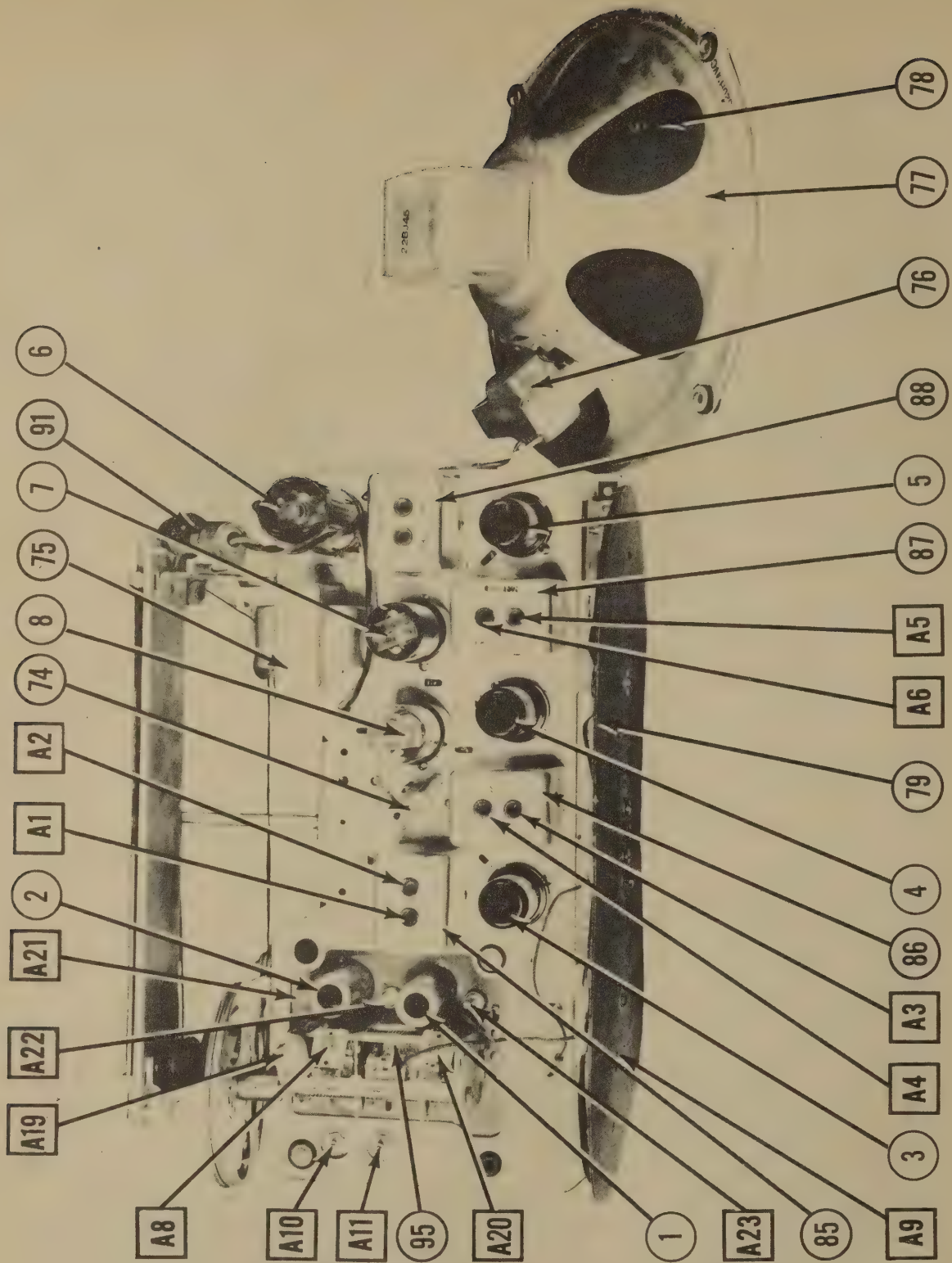
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DATE 12/47 SET #29 FOLDER #4719-14

MAJESTIC MODELS 8FM775
(Ch. 8B08D), 8FM776 (Ch. 8B07D)

MAJESTIC MODELS 8FM775
(Ch. 8B08D), 8FM776 (Ch. 8B07D) PAGE 1

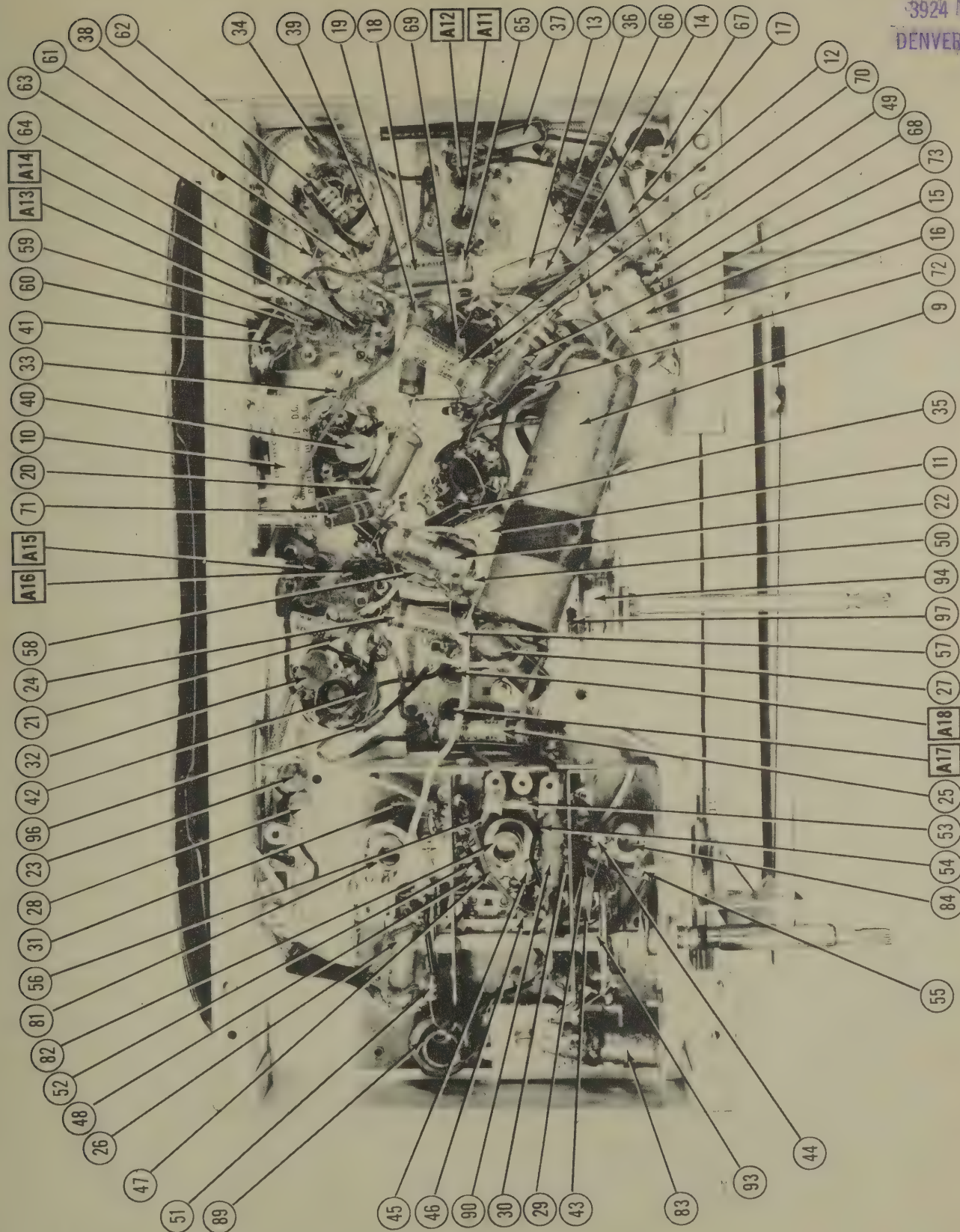
CHASSIS—TOP VIEW



DIAL STRING

2 TURNS

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MAJESTIC MODELS 8FM775
(Ch. 8B08D), 8FM776 (Ch. 8B07D) PAGE 3

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		MAJESTIC PART No.	RMA BASE TYPE	
1	RF Amp.	6BA6	7BK	
2	Converter	6BE6	7C7	
3	1st IF Amp.	6X4	8BK	
4	2nd IF Amp.	6X4	8BK	
5	Limiter	6SH7	8BK	
6	Disc.-Det.-AVC-AF	6SG7	8CB	
7	Power Output	25L6GT	7AC	
8	Rectifier	25Z6GT	7C	

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	EATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		MAJESTIC PART No.	JENSEN PART No.	
77A	FIELD PM	22-45	ST-119# Mod. P10-T	Used in Model 8FM776 #Replace output transformer to match 6-88 voice coil.
B	PM	22-42	ST-1151 Mod. P8-V	Used in Model 8FM775 #Fabricate new mounting bracket.
78A	CONE DIA.	VC DIA.		
B	9-1/4"	1"		
	7-3/8"	1/2"		
				NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT. CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		MAJESTIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
9A	100	19-37	72N520	TA-530	TA-530	PRSA150-50	Filter - Red - See Note 1
B	20					BRK1225	Blue
C	200					BRK1225	Cathode Bypass-Yellow
9A	50	19-44	72N520	TA-530	TA-530	PRSA150-50	Filter - Red - See Note 2
B	100					BRK1225	Blue
C	200					BRK1225	Cathode Bypass-Or.
10	150	19-32	72N520	TA-530	TA-530	PRSA150-50	Filter - Red - See Note 1
11	.05					BRK1225	Blue
12	.01					BRK1225	Cathode Bypass-Yellow
13	.01					BRK1225	Blue
14	.005					BRK1225	Cathode Bypass-Or.
15	.01					BRK1225	Blue
16	.002					BRK1225	Cathode Bypass-Yellow
17	.002					BRK1225	Blue
18	.01					BRK1225	Cathode Bypass-Or.
19	.01					BRK1225	Blue
20	.01					BRK1225	Cathode Bypass-Yellow
21	.01					BRK1225	Blue
22	.01					BRK1225	Cathode Bypass-Or.
23	.05					BRK1225	Blue
24	.01					BRK1225	Cathode Bypass-Yellow
25	.01					BRK1225	Blue
26	.005					BRK1225	Cathode Bypass-Or.
27	.05					BRK1225	Blue
28	.01					BRK1225	Cathode Bypass-Yellow
29	.01					BRK1225	Blue
30	.01					BRK1225	Cathode Bypass-Or.
31	.01					BRK1225	Blue
32	.01					BRK1225	Cathode Bypass-Yellow
33	.01					BRK1225	Blue
34	.01					BRK1225	Cathode Bypass-Or.
35	.01					BRK1225	Blue
36	.01					BRK1225	Cathode Bypass-Yellow
37	.01					BRK1225	Blue
38	.01					BRK1225	Cathode Bypass-Or.
39	.01					BRK1225	Blue
40	.01					BRK1225	Cathode Bypass-Yellow
41	.01					BRK1225	Blue
42	.01					BRK1225	Cathode Bypass-Or.
43	.01					BRK1225	Blue
44	.01					BRK1225	Cathode Bypass-Yellow
45	.01					BRK1225	Blue
46	.01					BRK1225	Cathode Bypass-Or.
47	.01					BRK1225	Blue
48	.01					BRK1225	Cathode Bypass-Yellow

*Parallel 50-30 sections and omit bypass section: Note 1 - Used in 8FM776 Note 2 - Used in 8FM775

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	MAJESTIC PART No.	MEISSNER PART No.
79	Loop Ant.	.22	1.22	S-1400	
80	FM Ant. Coil	.02	.02	S-1407	
81	FM RF Coil	.02	.02	S-1408	
82	AM Osc. Coil	.02	.02	S-1411	
83	AM Osc. Coil	.02	.02	S-1409	
84	AM Input IF	6.52	6.52	S-1390	
85A	FM 1st IF	.22	.22	S-1391	
86A	FM 2nd IF	.22	.22	S-1392	
87A	FM 3rd IF	.22	.22	S-1410	
88	Disc. Trans.	.22	.22	S-1394	
89	Wave Trap	.22	.22		
90	RF Choke	.22	.22		

Items 85A & 85B in same can.
Items 86A & 86B in same can.
Items 87A & 87B in same can.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA	
				MAJESTIC PART No.	MEISSNER PART No.
91	Bayonet.	115-125 V.			

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA		REMARKS
	MAJESTIC PART No.	ASTATIC PART No.	
92		L-70	

MISCELLANEOUS

ITEM No.	PART NAME	MAJESTIC PART No.	NOTES
93	Band Switch	11-71-1 11-71-2 11-71-3 11-72	Shaft Wafer, Sect. 1 " " 2 " " 3
94	Switch	7-25	Radio-Photo
95	Tuning Cap.	8-83	AM (17-500TFF, 17-500TFF)
A7	Trimmer	8-35	Wave-Trap Adj.
A8	"	8-59	BC Osc. Adj.
A9	"	8-65	BC Ant. Adj.
A10	Padder	8-38	BC Osc. Adj.
A11	Trimmer	8-35	FM Osc. Adj.
A12	Dial Scale	117-95	FM Ant. Adj.
A13	Dial Pointer	135-21	

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	REPLACEMENT DATA				INSTALLATION NOTES
	RATING RESISTANCE	MAJESTIC PART No.	MALORY PART No.	IRC PART No.	
49	500KΩ- 2 Meg.	03-32			Volume-Tone Control - Off-On Sw. This is a dual control operated by a concentric shaft.

RESISTORS

ITEM No.	REPLACEMENT DATA			IDENTIFICATION CODES
	RATING RESISTANCE	MAJESTIC PART No.	IRC PART No.	
50	470KΩ	01-199	BTS-470K	Y1-V1-Y1, AVC Network
51	47KΩ	01-157	BTS-47K	Y1-V1-Or, Converter Grid
52	68Ω	01-37	BW-2-68	Blue-Gray-Blk. RF Cathode
53	3500Ω	02-108	BTS-3500	Or.-Or.-Red RF Plate Load
54	10Ω	01-3	BW-2-10	Br.-Blk.-Blk. Parasitic Suppressor
55	22KΩ	01-143	BTS-22K	Red-Red-Or. Oscillator Grid
56	2200Ω	01-101	BTS-2200	Red-Red-Red. Screen Dropping
57	470KΩ	01-199	BTS-470K	Y1-V1-Y1, AVC Network
58	2.2 Meg.	01-227	BTS-2.2	Red-Red-Grn. " "
59	22KΩ	01-143	BTS-22K	Red-Red-Or. Diode RF Filter
60	470KΩ	01-199	BTS-470K	Y1-V1-Y1, Diode Load
61	47KΩ	01-157	BTS-47K	Y1-V1-Or, Limiter Grid
62	3300Ω	02-132	BTA-3300	Or.-Or.-Red Limiter Screen Bleeder
63	12KΩ	01-199	BTS-12K	Br.-Red-Or. Limiter Screen Dropping
64	470KΩ	01-199	BTS-470K	Y1-V1-Y1, Series Test Jack
65	47KΩ	01-157	BTS-47K	Y1-V1-Or, Limiter Plate Decoupling
66	470KΩ	01-199	BTS-470K	Y1-V1-Y1, AF Plate Load
67	4.7 Meg.	01-132	BTS-4.7	Y1-V1-Grn. AF Grid - See Note 1
68	12KΩ	01-199	BTS-12K	Br.-Red-Or. Tone Compensation
69	470KΩ	01-199	BTS-470K	Y1-V1-Y1, Output Cathode
70	150Ω	02-52	BW-2-150	Br.-Grn.-Br. Filter - See Note 2
71	100Ω	01-145	BW-2-100	Or.-Blue-Blk. Surge Limiter - See Note 3
72	36Ω	04-69	BW-1-33	Or.-White-Br. Series Pilot Light
73	390Ω	09-332	BW-2-390	Red-Red-Grn. Line Dropping
74	100Ω	01-143	DG-100	Red-Red-Grn. Series Photo
75	2.2 Meg.	01-227	BTS-2.2	Blue-Gray-Blk. IF Cathode
76	500Ω	01-37	BW-2-500	

Note 1 - Some models use 10 Meg. in this application. IRC replacement BTS-10 Meg.

Note 2 - Some models use two 150Ω resistors in parallel.

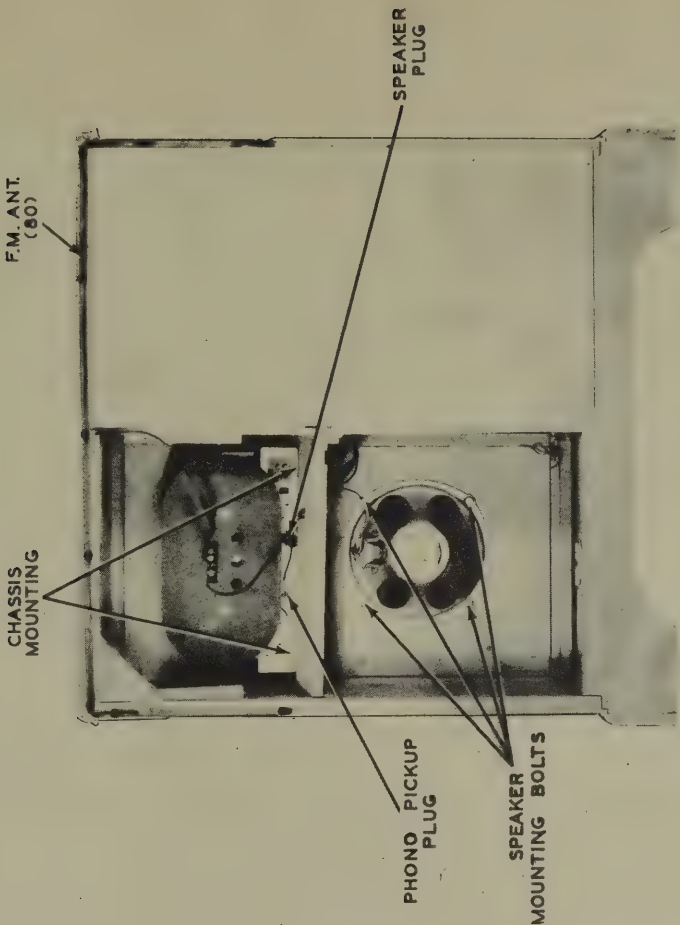
Note 3 - Some models use 27Ω in this application. IRC replacement BW-1-27.

FILTER CHOKE

ITEM NO.	RATINGS				REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (1000 μH)	MAJESTIC PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
75	.058A	100Ω	3.4 Henries	2-32	C-1706\$	T20055\$	C-2977	Drill one new mounting hole.

TRANSFORMER (OUTPUT)

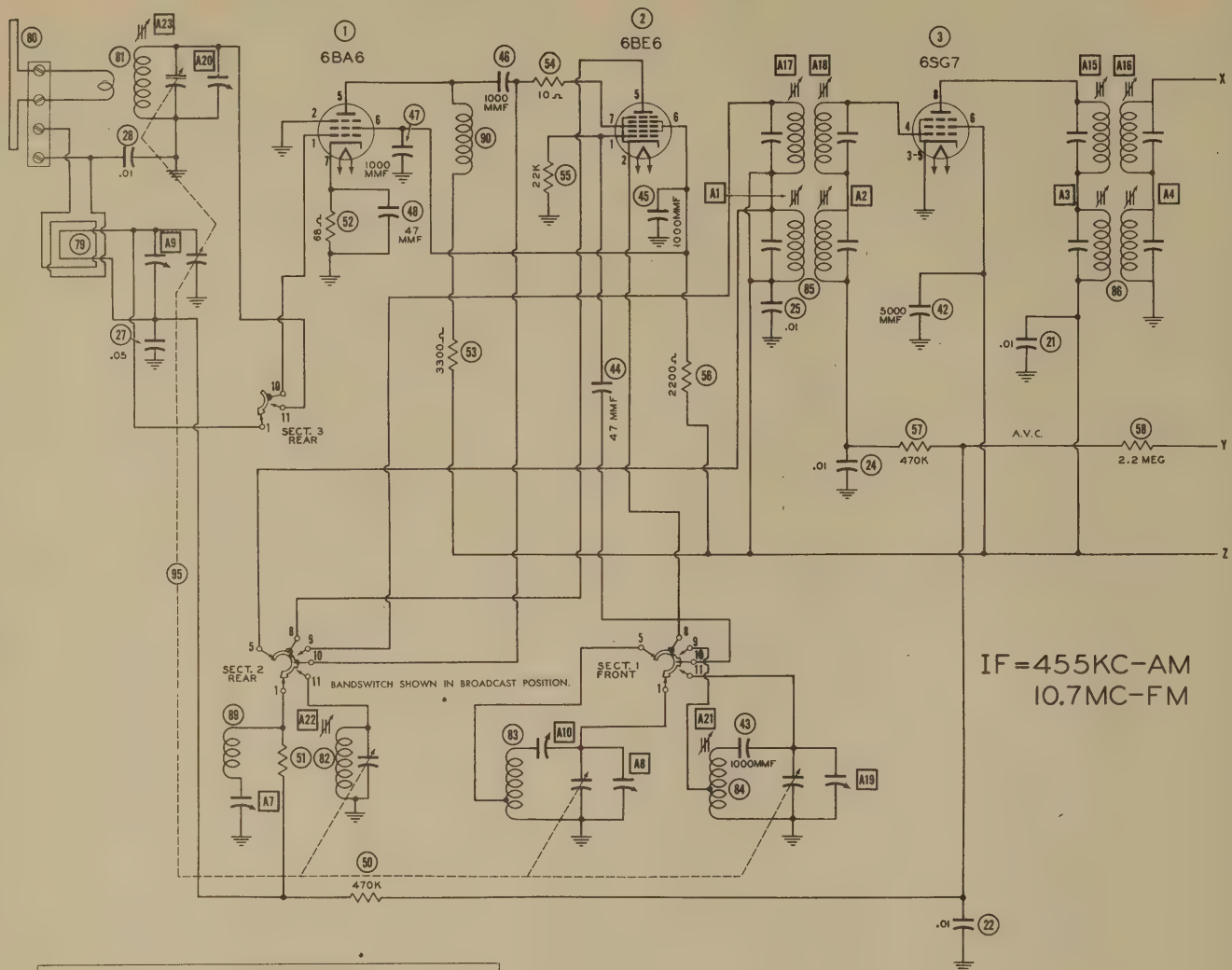
ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	SEC. PRI.	SEC. PRI.	MAJESTIC PART No.	STANCOR PART No.	THORDARSON PART No.	
76A	2000Ω	3.4Ω	150Ω	.5Ω	Part of 22-42	A-3649	T22S87	Used in Model 8FM776
B	2100Ω	3.2Ω	220Ω	.6Ω	Part of 22-42	A-3676	T22S45	A-2928



DISASSEMBLY INSTRUCTIONS

1. Remove two push-on type control knobs.
2. Loosen set screw and remove third control knob.
3. Remove FM antenna leads from terminal strip on back of loop antenna.
4. Remove four wood screws holding cover over back of chassis. Remove cover.
5. Disconnect phono-motor plug.
6. Remove speaker plug from chassis.
7. Remove phono-pickup plug from chassis.
8. Remove ground lead from terminal strip on back of loop antenna.
9. Remove four screws holding chassis in cabinet. Remove chassis from cabinet.
10. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.

BLACK.
3924 MADE IN U.S.A.
DENVER, COLORADO



IF=455KC-AM
10.7MC-FM

STAGE GAIN MEASUREMENTS

ANT. TO RF GRID	10X	600KC
RF GRID TO CONV. GRID	4X	600KC
CONV. GAIN	12X	IN 600KC OUT 455KC
1st IF TRANS.	.4X	455KC
1st IF TUBE	25X	455KC
2nd IF TRANS.	.55X	455KC
2nd IF TUBE	90X	455KC
3rd IF TRANS.	.65X	455KC
AUDIO	40X	400~
OUTPUT	15X	400~

VOLTAGE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	-.2VDC	0V.	24VAC	30VAC	85VDC	85VDC	.8VDC	-
2	6BE6	-.7VDC	0V.	36VAC	30VAC	105VDC	85VDC	-.2VDC	-
3	6SG7	0V.	18VAC	0V.	-.6VDC	0V.	105VDC	24VAC	105VDC
4	6SG7	0V.	12VAC	.7VDC	0V.	.7VDC	105VDC	18VAC	105VDC
5	6SH7	0V.	6VAC	0V.	-.4VDC	0V.	22VDC	12VAC	85VDC
6	689GT	-.4VDC	0V.	-.4VDC	-.5VDC	-.1VDC	58VDC	0V.	6VAC
7	25L6GT	0V.	60VAC	100VDC	105VDC	0V.	105VDC	36VAC	7.2VDC
8	25Z60T	88VAC	60VAC	117VAC	105VDC	117VAC	110VDC	85VAC	115VDC

† TAKEN WITH VACUUM TUBE VOLTMETER.

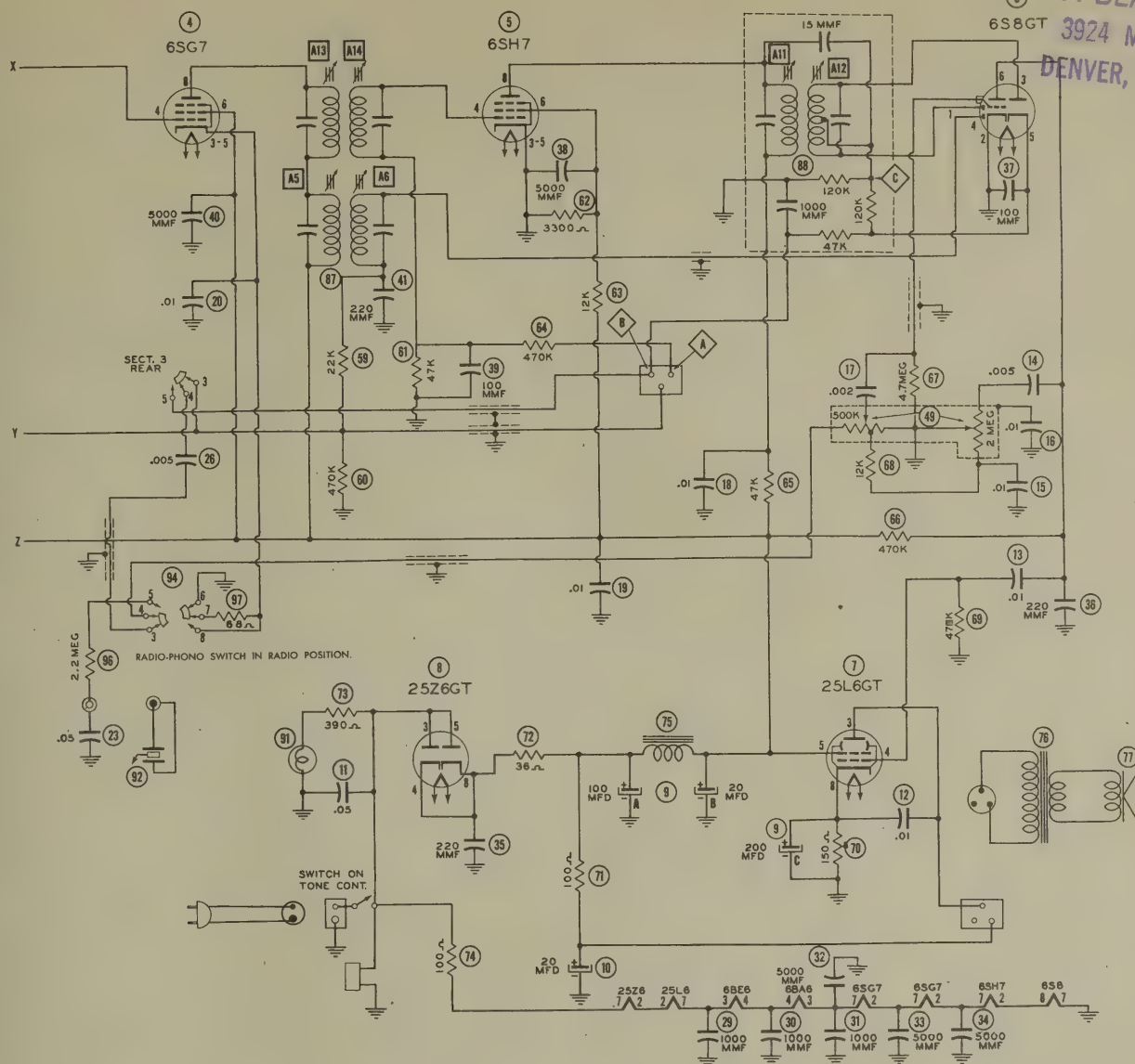
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DENVER, COLORADO



RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	4 Meg.	0Ω	14Ω	18Ω	19KΩ	18KΩ	68Ω	-
2	6BE6	22KΩ	.6Ω	22Ω	18Ω	16KΩ	18KΩ	4 Meg.	-
3	6S07	0Ω	11Ω	0Ω	4 Meg.	0Ω	16KΩ	14Ω	16KΩ
4	6S07	0Ω	6Ω	65Ω	6.5Ω	65Ω	16KΩ	11Ω	16KΩ
5	6SH7	0Ω	3Ω	0Ω	.47KΩ	0Ω	3.3KΩ	6Ω	62KΩ
6	6SB6	120KΩ	0Ω	120KΩ	480KΩ	270KΩ	490KΩ	0Ω	3Ω
7	25L6GT	0Ω	31Ω	16KΩ	16KΩ	500KΩ	16KΩ	22Ω	150Ω
8	25Z6GT	150Ω	31Ω	115Ω	16KΩ	115Ω	16KΩ	41Ω	16KΩ

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4719-14

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

FM ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

(Connect synchronized sweep voltage from signal generator to horizontal amplifier.)

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6 .05 MFD.	High side to Pin 4 (grid) of 6SG7 2nd IF Tube (4). Low side to chassis.	10.7MC (Freq. modulated at 60 μ , 300KC deviation.)	FM (clock-wise)	88MC	Vertical amplifier to Pin #3 of test socket (Point A). Ground to chassis.	A13,A14	Adjust for maximum amplitude and symmetry of pattern per Fig. 1.
7 .05 MFD.	High side to Pin 4 (grid) of 6SG7 1st IF tube (3). Low side to chassis.	"	"	"	"	A15,A16	"
8 .05 MFD.	High side to junction of wave trap and resistor 51 low side to chassis	"	"	"	"	A17,A18	"
9 .05 MFD.	"	"	"	"	Vertical amplifier to Pin #1 of test socket (Point B). Ground terminal to chassis.	A11,A12	Adjust for maximum amplitude and symmetry with maximum straightness of diagonal line per Fig. 2.
10 300 Ω carbon res.	High side to one FM dipole terminal in series with 300 Ω . Low side to other dipole terminal.	106MC (Freq. modulated at 60 μ , 300KC deviation.)	"	106MC	Vertical amplifier to Point A. Ground to chassis	A19	Center the pattern in the center of the scope sweep line per Fig. 1.
11 "	"	"	"	"	"	A20	Adjust for maximum amplitude.
12 "	"	88MC (Freq. modulated at 60 μ , 300KC deviation.)	"	88MC	"	A21	Center the pattern in the center of the scope sweep line per Fig. 1.
13 "	"	"	"	"	"	A22,A23	Adjust for maximum amplitude.



FIGURE 1

FM ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

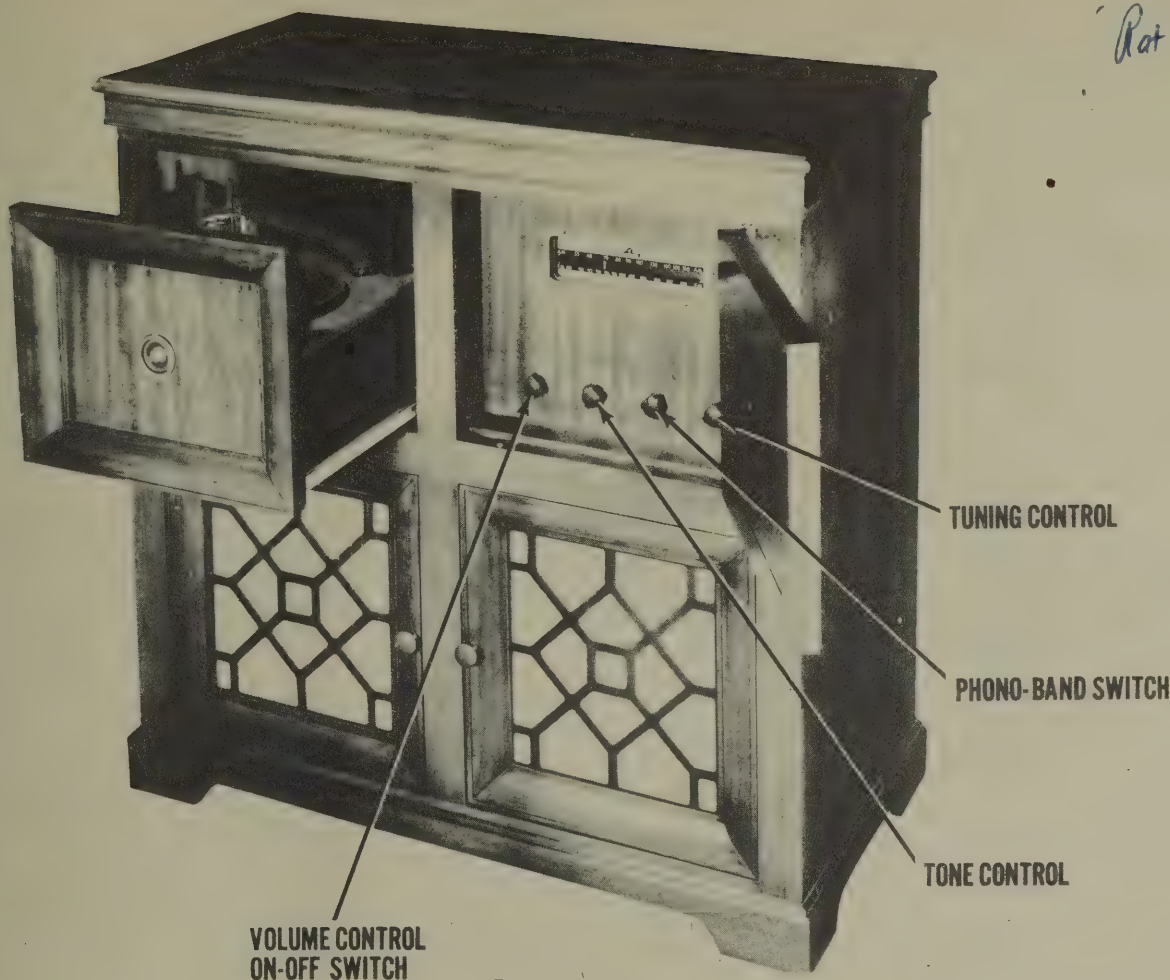
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6 .05 MFD.	High side to Pin 4 (grid) of 6SG7. Low side to chassis.	10.7MC (unmodulated)	FM (clock-wise)	88MC	DC probe to blank terminal of disc. trans. #88 (Point C). Common lead to chassis.	A11	Adjust for maximum deflection.
7 .05 MFD.	"	"	"	"	DC probe to point B. Common lead to chassis.	A12	Use a zero center scale VTVM if available. Adjust for zero reading.
8 .05 MFD.	High side to Pin 4 (grid) of 6SG7 2nd IF Tube #4. Low side to chassis.	"	"	"	DC probe to Point A. Common lead to chassis.	A13,A14	Adjust for maximum deflection.
9 .05 MFD.	High side to Pin 4 (grid) of 6SG7 1st IF Tube #3. Low side to chassis.	"	"	"	"	A15,A16	"
10 .05 MFD.	High side to junction of wave trap coil and resistor 51. Low side to chassis.	"	"	"	"	A17,A18	"
11 300 Ω car.res.	High side to one FM dipole terminal in series with 300 Ω . Low side to other dipole terminal.	106MC	"	106MC	"	A19	"
12 "	"	"	"	Tune for maximum deflection.	"	A20	"
13 "	"	88MC	"	88MC	"	A21	"
14 "	"	"	"	Tune for maximum deflection.	"	A22, A23	Adjust for maximum deflection. Repeat Steps 11, 12, 13 and 14 until no further improvement can be made.



FIGURE 2

PROPERTY OF
Rat F. BLANKENSHI
3924 MEADE ST.
DENVER, COLORADO

MONITOR
MODEL M-3070



MONITOR
MODEL M-3070

PAGE 1

MONITOR MODEL M-3070

TRADE NAME	Monitor, Model M-3070
MANUFACTURER	Monitor Equipment Co., Riverdale, New York 63, N.Y.
TYPE SET	AC Operated FM-AM Radio-Phono Combination Superheterodyne with Loop Ant.
TUBES(ELEVEN)	Types, 6BA6 FM RF Amp., 6BE6 FM Mixer, 6C4 FM Osc., 6SK7 AM RF Amp., 6SA7 AM Converter, 6SK7 AM-FM IF Amp., 6SH7 FM IF Amp., 6H6 FM Det., 6SQ7 AM Det.-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-125 Volts AC
RATING	.660 Amp. @ 117 Volts AC
TUNING RANGE	- BROADCAST 540-1600KC FREQ. MOD. 88-108MC

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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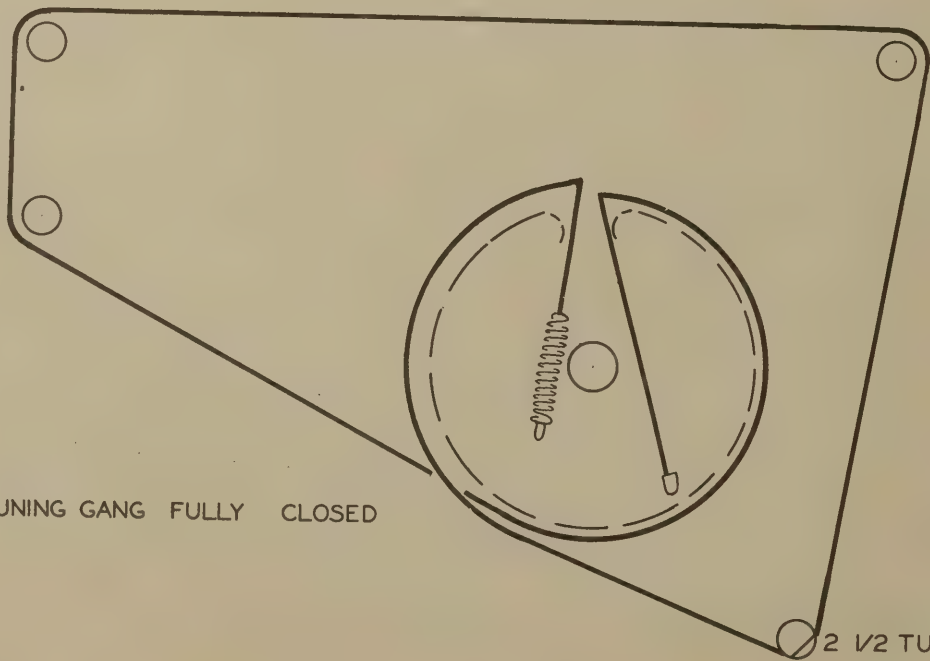
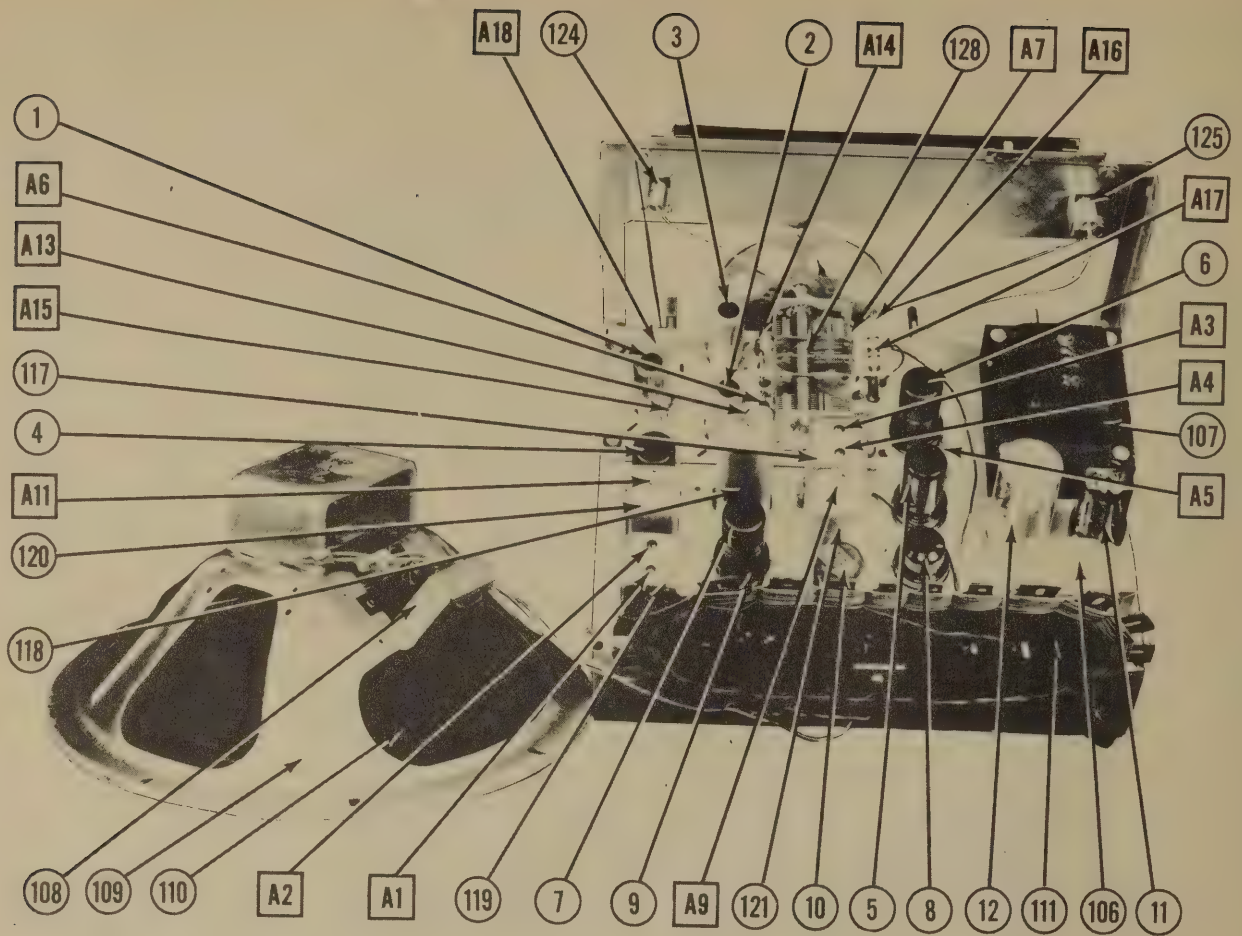
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DATE 12/47

SET #29

FOLDER #4719-15

CHASSIS—TOP VIEW



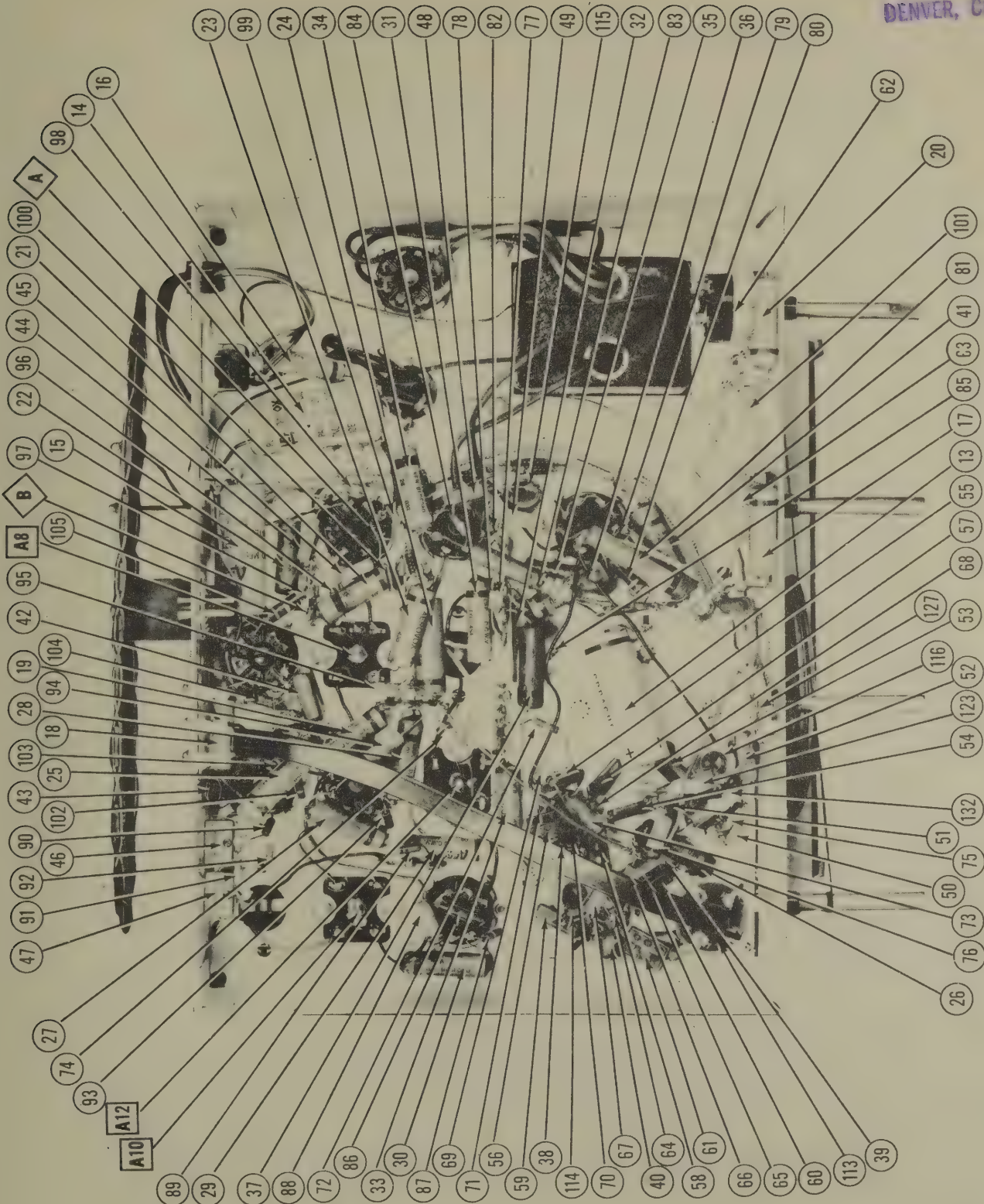
TUNING GANG FULLY CLOSED

DIAL

CORD

DRIVE

PROPERTY OF
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DENVER, COLORADO



MONITOR
MODEL M-3070 **PAGE 3**

PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		MONITOR PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	FM RF Amp.	6BA6	7BK		
2	FM Mixer	6BE6	7OH		
3	FM Osc.	6CA	6G6		
4	AM RF Amp.	6SK7	8N		
5	AM Converter	6SA7	8R		
6	AM-FM IF Amp.	6SK7	8N		
7	FM IF Amp.	6SH7	9BK		
8	FM Det.-AVC-AF	6BE6	7C		
9	Power Output	6X6GT	9C		
10	Rectifier	5Y3GT	7AC		
11			5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	MONITOR PART No.	MALLOY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNEILL-DUBILIER PART No.	INSTALLATION NOTES
12A	40	450	CD-1248	FP238	DY-2x40-450	EL-240	AF88J	UP4445	Filter
13	40	450							"
14	40	450	CD-1247	TC71	M-8-450	UT-8	PR8450-8	BR845	Stabilizing Cap.
15	8	450	CD-1247	TC71	M-8-450	UT-8	PR8450-8	BR845	Output Cathode Bypass
16	50	50	CD-1246	TC39	M-50-50	TA-550	PR850-50	BR505	Line Filter
17	.01	400	CD-1227-8	TP421	MFH-4-01	TC-11	484-01	DT481	Tone Comp.
18	.02	400	CD-1227-10	TP423	S-4-02	TC-12	484-02	DT482	Audio Coupling
19	.02	400	CD-1227-10	TP423	S-4-02	TC-12	484-02	DT482	
20	.02	400	CD-1227-10	TP423	S-4-02	TC-12	484-02	DT482	
21	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	Tone Comp.
22	.002	400	CD-1227-3	TP405	S-6-002	TC-22	484-002	DT602	Audio Coupling
23	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	De-emphasis
24	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	2nd IF Plate Decoupling
25	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	AFC Filter
26	.02	400	CD-1227-10	TP423	S-4-02	TC-12	484-02	DT482	Audio Coupling
27	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	RF Bypass Pwr. Supply
28	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	2nd IF Screen Bypass
29	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	1st IF Cathode Bypass
30	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	1st IF Plate Decoupling
31	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	1st IF Screen Bypass
32	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	AFC Filter
33	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	AM Conv. Plate Decoupling
34	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	FM Mixer Plate Decoupling
35	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	AM Conv. Screen Bypass
36	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	AFC Filter
37	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	AM RF Screen Bypass
38	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	AFC Filter
39	.01	400	CD-1227-8	TP421	S-4-01	TC-11	484-01	DT481	"
40	.002	400	CD-1227-3	TP405	S-6-002	TC-22	484-002	DT602	FM RF Screen Bypass
41	.05	400	CD-1227-24	TP426	S-4-05	TC-15	484-05	DT455	FM RF Isolation
42	1000	500	CD-1160-5	MC255	MO.3-21	1FM-21	1468-001	1WSD1	RF Bypass Pwr. Supply
43	100	500	CD-1071-22	MC235	MO.5-31	1FM-31	1468-0001	5WST1	Output Plate Bypass
44	100	500	CD-1071-22	MC235	MO.5-31	1FM-31	1468-0001	5WST1	AF Plate Bypass
45	100	500	CD-1071-22	MC235	MO.5-31	1FM-31	1468-0001	5WST1	Diode Load Cap.
46	100	500	CD-1071-22	MC235	MO.5-31	1FM-31	1468-0001	5WST1	"
47	100	500	CD-1071-22	MC235	MO.5-31	1FM-31	1468-0001	5WST1	Diode RF Filter
48	100	500	CD-1071-22	MC235	MO.5-31	1FM-31	1468-0001	5WST1	"
49	1000	500	CD-1095-29	MC255	MO.3-21	1FM-21	1468-0001	5WST1	AM Osc. Grid
50	100	500	CD-1157-13	MC235	MO.5-31	1FM-31	1468-0001	5WST1	RF Coupling
51	5	500	CD-1245-1	MC206	MO.3-55	1FM-55	1469-000006	SR8V5	FM Osc. Grid Cap.
52	1000	500	CD-1160-5	MC255	MO.3-21	1FM-21	1468-0001	5WST1	FM Osc. Feedback
53	50	500	CD-1245-2	MC229	MO.5-45	1FM-45	1469-000006	SR535	FM Osc. Plate Decoupling
54	100	500	CD-1085-20	MC215	MO.5-41	1FM-41	1469-00001	SR501	FM Osc. Fixed Pad.
55	1000	500	CD-1085-20	MC215	MO.3-21	1FM-21	1468-0001	1WSD1	FM Osc. Coupling
56	1000	500	CD-1085-20	MC255	MO.3-21	1FM-21	1468-0001	1WSD1	FM Mixer Screen Bypass
57	90	500	CD-1158-17	MC255	MO.3-21	1FM-21	1468-0001	1WSD1	FM Mixer Cathode Bypass
58	1000	500	CD-1160-5	MC255	MO.3-21	1FM-21	1468-0001	1WSD1	Fixed Pad. FM
59	1000	500	CD-1160-5	MC255	MO.3-21	1FM-21	1468-0001	1WSD1	FM RF Coupling
60	100	500	CD-1157-13	MC235	MO.3-31	1FM-31	1468-0001	1WSD1	FM RF Plate Decoupling
61	100	500	CD-1157-13	MC235	MO.5-31	1FM-31	1468-0001	5WST1	FM Cathode Bypass
61	100	500	CD-1157-13	MC235	MO.5-31	1FM-31	1468-0001	5WST1	RF Coupling

PARTS LIST AND DESCRIPTIONS (Continued)
TRANSFORMER (OUTPUT)

ITEM No.	IMPEDANCE	RATING			REPLACEMENT DATA			INSTALLATION NOTES
		PRI.	SEC.	DC RES.	MONITOR PART No.	STANCOR PART No.	THORDARN PART No.	
108	3700Ω	3.7Ω	180Ω	.7Ω	TR-1060	A-3849	T22587	A-2902

ITEM No.	FIELD	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
		PM	VC DIA.	VC IMP.	MONITOR PART No.	JENSEN PART No.	ST-102#	
109	PM	3.7Ω	3.7Ω		SK-1016	Mod. F12-S		#Replace output transformer to match 62 voice coil.
110	CONE DIA.	11-3/4"	1-1/4"					NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	MONITOR PART No.	MEISSNER PART No.
111	Loop Ant.	.1Ω	1.2Ω	AT-1019	
112	FM Ant.			AS-3599	
113	FM Ant. Coil	0Ω	0Ω	TR-1064	
114	FM RF Coil			CI-1057	
115	AM Osc. Coil			CI-1059	
116	FM Osc. Coil			CI-1058	
117	FM Input IF	19Ω	20Ω	TR-1052	
118	FM Input IF	.3Ω	.24Ω	TR-1065	16-6658
119	FM Output IF	.28Ω	.3Ω	TR-1051	16-6660
120	FM 2nd IF	.3Ω	.1Ω	TR-1066	
121	Ratio Det.	.3Ω	.1Ω	TR-1036	
122	RF Choke	.1Ω	.1Ω	CK-1036	
123	RF Choke				

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MONITOR PART No.	LA-1014-32	
124	Bayonet	6-8	.15	Brown		LA-1014-32	Type 47
125							

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA	REMARKS
	MONITOR PART No.	ASTATIC PART No.
126		Q73-M

MISCELLANEOUS

ITEM No.	PART NAME	MONITOR PART No.	NOTES
127	Switch	SW-1069	Band-Phono
128	Tuning Cap.	CDC-5001	AM (28-465KHz, 31-192KHz)

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	MONITOR PART No.	MALLODY PART No.	IRC PART No.	CLAROSTAT PART No.	
62A 500KΩ	1		RE-1191	TR233	D13-133A	T-98	Volume Control
B Start	Not Req.		Not Req.	Not Req.	41	Not Req.	Attach to 62A per instructions
C Switch			RE-1182	MR44	D13-130	M-64-2	Tone Control
63A 250KΩ	2		Not Req.	Not Req.	A	Not Req.	Attach to 63A per instructions
B 500KΩ							

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	MONITOR PART No.	IRC PART No.		
64 100KΩ	1		RE-1166-107	BTS-100K	Br.-Blk.-Yl.	FM-RF Grid
65 68Ω			RE-1139-683	BW-2-68	Blue-Gray-Blk.	FM-RF Cathode
66 22KΩ			RE-1166-226	BTA-10K	Red-Red-Or.	FM-RF Screen Dropping
67 10KΩ			RE-1169-106	BTA-10K	Br.-Blk.-Or.	FM-RF Plate Decoupling
68 22KΩ			RE-1166-226	BTS-22K	Red-Red-Or.	FM Mixer Grid
69 100KΩ			RE-1166-107	BTS-100K	Br.-Blk.-Yl.	AVC Network
70 100Ω			RE-1139-104	BW-2-100	Br.-Blk.-Br.	FM Mixer Cathode
71 22KΩ			RE-1166-226	BTS-22K	Red-Red-Or.	FM Injector Grid
72 150KΩ			RE-1062-157	BTS-150K	Br.-Grn.-Yl.	FM Mixer Screen Bleeder
73 22KΩ			RE-1166-226	BTA-22K	Red-Red-Or.	FM Mixer Screen Dropping
74 10KΩ			RE-1166-106	BTA-10K	Br.-Blk.-Or.	FM Mixer Plate Decoupling
75 22KΩ			RE-1166-226	BTS-22K	Red-Red-Or.	FM Oscillator Grid
76 10KΩ			RE-1166-106	BTA-10K	Br.-Blk.-Or.	FM Oscillator Decoupling
77 100KΩ			RE-1166-107	BTS-100K	Br.-Blk.-Yl.	AVC Network
78 100KΩ			RE-1166-107	BTS-100K	Br.-Blk.-Yl.	
79 100Ω			RE-1139-104	BW-2-100	Br.-Blk.-Br.	AF-RF Cathode
80 47KΩ			RE-1166-476	BTA-47K	Yl.-Vl.-Or.	AM-RF Screen Dropping
81 10KΩ			RE-1046-106	BTA-2-10K	Br.-Blk.-Or.	AM-RF Plate Load
82 100KΩ			RE-1166-107	BTS-100K	Br.-Blk.-Yl.	AM Converter Grid
83 27KΩ			RE-1046-276	BTA-2-27K	Red-Vl.-Or.	AM Converter Screen Dropping
84 22KΩ			RE-1166-226	BTS-22K	Red-Red-Or.	AM Oscillator Grid
85 100KΩ			RE-1166-106	BTA-100K	Br.-Blk.-Red	AM Converter Plate Decoupling
86 100Ω			RE-1139-104	BW-2-100	Br.-Blk.-Br.	1st IF Cathode
87 22KΩ			RE-1166-226	BTA-22K	Red-Red-Or.	1st IF Screen Bleeder
88 22KΩ			RE-1166-226	BTA-22K	Red-Red-Or.	1st IF Screen Dropping
89 100KΩ			RE-1166-106	BTA-100K	Br.-Blk.-Red	1st IF Plate Decoupling
90 1 Meg.			RE-1139-103	BTS-1 Meg.	Yl.-Vl.-Or.	AVC Network
91 47KΩ			RE-1166-476	BTS-47K	Yl.-Vl.-Or.	Diode RF Filter
92 470KΩ			RE-1166-477	BTS-470K	Yl.-Vl.-Yl.	Diode Load
93 100Ω			RE-1139-104	BW-2-100	Br.-Blk.-Br.	2nd IF Cathode
94 33KΩ			RE-1166-336	BTA-33K	Or.-Or.-Or.	2nd IF Screen Dropping
95 220Ω			RE-1166-225	BTS-220Ω	Red-Red-Red	2nd IF Plate Decoupling
96 220Ω			RE-1139-224	BW-2-220	Red-Red-Br.	Balancing
97 22KΩ			RE-1166-226	BTS-22K	Red-Red-Or.	De-emphasis
98 680Ω			RE-1166-685	BTS-680Ω	Blue-Gray-Red	Blue-Gray-Red Diode Load
99 680Ω			RE-1166-685	BTS-680Ω	Br.-Blk.-Grn.	AVC Network
100 1 Meg.			RE-1139-103	BTS-1 Meg.	Red-Red-Or.	Tone Compensation
101 22KΩ			RE-1166-226	BTS-22K	Br.-Blk.-Blue	AF Grid
102 10 Meg.			RE-1139-109	BTS-10 Meg.	Yl.-Vl.-Yl.	AF Plate Load
103 470KΩ			RE-1166-477	BTS-470K	Yl.-Vl.-Yl.	Output Grid
104 470KΩ			RE-1166-477	BTS-470K	Red-Vl.-Yl.	Output Cathode
105 270Ω			RE-1063-274	BW-1-270		

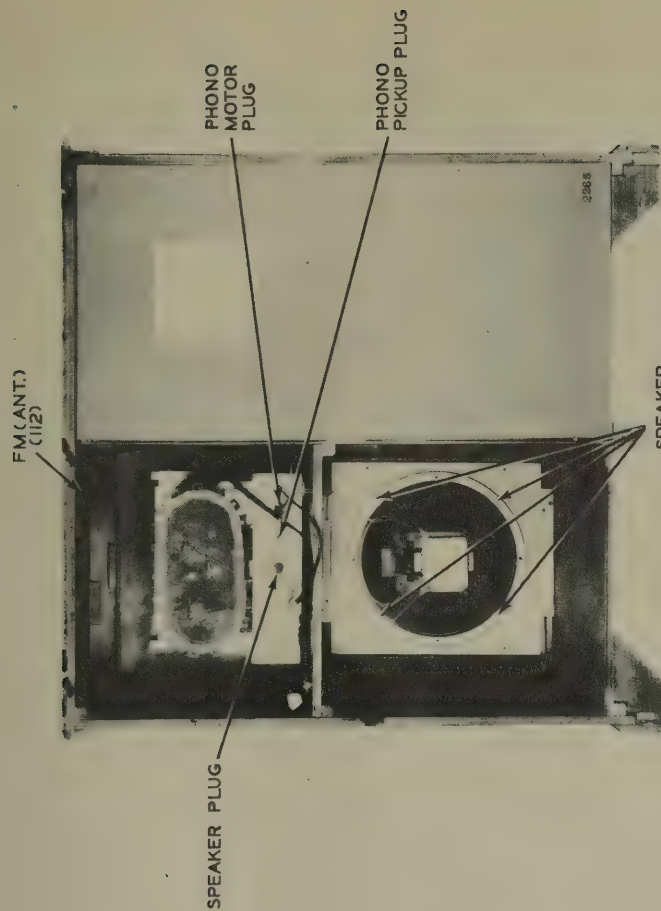
FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES	
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (1000 μ)	MONITOR PART No.	STANCOR PART No.	THORDARSON PART No.
106	.045A	200Ω	8 Henries	OK-1040	C-1002	T20053*

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		
	PHI	SEC. 1	SEC. 2	MONITOR PART No.	STANCOR PART No.	THORDARSON PART No.
107	117V AC	560V AC	4.9V AC	TR-1061	P-60131	T22R05

*Add series resistor to reduce plate voltage.

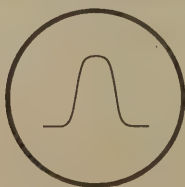


DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove phono-motor plug from chassis.
3. Remove phono-pickup plug from chassis.
4. Remove speaker plug from chassis.
5. Remove FM dipole from chassis.
6. Remove four Phillips head screws holding chassis in cabinet. Remove chassis from cabinet.
7. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.

PROPERTY OF
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DENVER, COLORADO

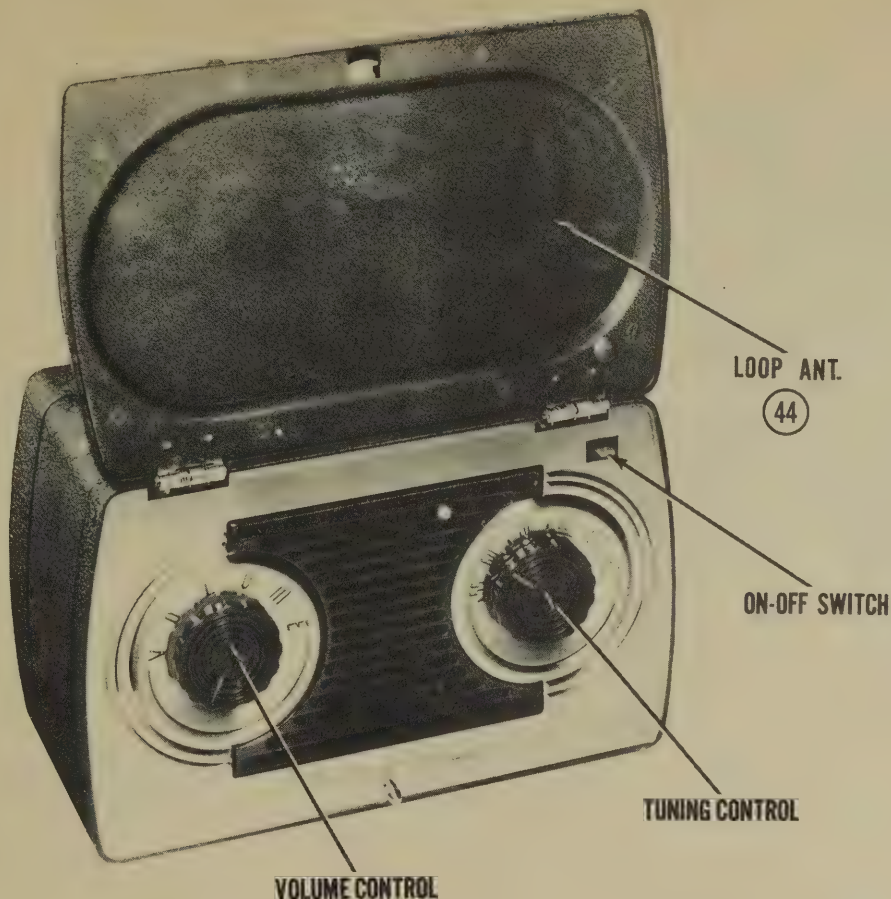
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
To set pointer turn tuning cap. fully closed and set pointer to reference dot at low freq. end of dial. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.							
AM ALIGNMENT							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .01 MFD	High side to Pin 8 (grid) 6SA7. Low side to chassis.	455KC	BC (fully counter-clockwise)	Tuning cap. fully closed	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output
2 .01 MFD	"	600KC	"	600KC	"	A5	" " " " " "
3 .01 MFD	"	1600KC	"	1600KC	"	A6	Adjust for maximum output Repeat Steps 2 and 3 until no further improvement can be made.
4	Loop	1400KC	"	Tune for maximum output.	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
FM ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5 .002MFD	High side to Pin 4 (grid) of 6SH7. Low side to chassis.	10.7MC (unmodulated)	FM (center position)	Tuning cap. fully closed	DC probe to Point A. Common lead to chassis.	A8	Adjust for maximum deflection.
6 .002MFD	"	"	"	"	DC probe of VTVM to Point B. Common lead to chassis.	A9	Use a zero center scale VTVM if available. Adjust for zero deflection. At the correct setting the slightest change of A9 will cause either a negative or positive reading. A slow approach to zero indicates that A9 should be turned in the opposite direction.
7 .002MFD	High side to Pin 4 (grid) 6SK7 IF Tube #6. Low side to chassis.	"	"	"	DC probe to Point A. Common lead to chassis.	A10, A11.	Adjust for maximum deflection.
8 .002MFD	High side to Pin 7 (grid) of 6BE6. Low side to chassis.	"	"	"	"	A12, A13	Adjust for maximum deflection. Repeat Steps 7 and 8.
9 DIRECT	Across FM Dipole terminals of ant. terminal strip.	88MC (unmodulated)	"	88MC	"	A14, A15	Adjust for maximum deflection.
10 DIRECT	"	106MC	"	106MC	"	A16, A17	Adjust for maximum deflection. Repeat Steps 9 and 10 until no further improvement can be made.
11 DIRECT	"	98MC	"	Tune for maximum output.	"	A18	Adjust for maximum deflection.
FM ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE (Frequency modulate signal with 60 μ , 450KC sweep. Use 120 μ sawtooth for horizontal deflection).							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5 .002MFD	High side to Pin 4 (grid) 6SH7. Low side to chassis.	10.7MC (freq. modulated)	FM	Tuning cap. fully closed	Vertical input to Point A. Ground to chassis.	A8	Disconnect 8 MFD cap. from Point A. Adjust for maximum amplitude, symmetry and coincidence per Pattern A.
6 .002MFD	High side to Pin 4 (grid) 6SK7. Low side to chassis.	"	"	"	"	A10, A11	Adjust for maximum amplitude, symmetry and coincidence per Pattern A.
7 .002MFD	High side to Pin 7 (grid) 6BE6. Low side to chassis.	"	"	"	"	A12, A13	Adjust for maximum amplitude, symmetry and coincidence per Pattern A. Reconnect 8 MFD cap. to Point A.
8 .002MFD	High side to Pin 8 (grid) 6SA7. Low side to chassis.	"	"	"	Vertical input to Point B. Ground to chassis.	A9	Adjust for maximum straightness of crossover lines with crossover at center of Pattern per Pattern B.
9 DIRECT	Across FM dipole terminals of ant. terminal strip.	88MC (freq. modulated)	"	88MC	Vertical input to Point A. Ground to chassis.	A14	Disconnect 8 MFD. cap. from Point A. Adjust for coincidence of curves.
10 DIRECT	"	"	"	Tune for coincidence.	"	A15	Adjust for maximum amplitude.
11 DIRECT	"	106MC (freq. modulated)	"	106MC	"	A16	Adjust for coincidence.
12 DIRECT	"	"	"	Tune for coincidence.	"	A17	Adjust for maximum amplitude.
13 DIRECT	"	90MC (freq. modulated)	"	"	"	A18	Adjust for maximum amplitude. Reconnect 8 MFD capacitor to Point A.



PATTERN A



PATTERN B



MOTOROLA MODEL 5A7 (Ch. HS-62), 5A7A (Ch. HS-62A) BATTERY OPERATED

MOTOROLA MODEL 5A7 (Ch. HS-62), 5A7A (Ch. HS-62A) BATTERY OPERATED

MOTOROLA MODEL 5A7 (Ch. HS-62)

TRADE NAME	Motorola, Model 5A7 (Ch. HS-62), 5A7A (Ch. HS-62A)
MANUFACTURER	Motorola, Inc., 4545 Augusta Blvd., Chicago, Ill.
TYPE SET	Three Power Portable Superheterodyne with Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1U4 IF Amp., 1R5 Det.-AVC-AF, 3R4 Power Output.
POWER SUPPLY	110-120 Volts AC-DC or 3 Volts DC "A" Supply and 67.5 Volts DC "B" Supply
RATING	.120 Amp. @ 117 Volts AC or 160MA @ 3 Volts DC and 8 MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to Pin 6 (grid) of 1R5. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MFT to reduce hum modulation.
2	Loop	1620KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3	"	1400KC	Tune for maximum output.	"	A5	Adjust for maximum output.
4	"	600KC	"	"	A6	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 and 4 until no further improvement can be made.

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DATE 12/47 SET #29 FOLDER #4719-16

PARTS LIST AND DESCRIPTIONS

MOTOROLA MODELS SA7 (Ch. HS-62), SA7A (Ch. HS-62A)

CHASSIS--TOP VIEW

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1U4	1U4	6AR	
3	Det., AVC-AF	1S5	1S5	6AU	
4	Power Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MOTOROLA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
5A	40	239A70692		DY-403020-150	EL-224 AF844D	UP42215 Filter
5B	15					
5C	15					
6	80	239A70693				
7	25	3A47606		M-100-25	UHQ-102PRS25-100	BRH251 Filament Bypass
8	0.005	8A24966	TP426	S-4-05		DT4S5 Line Filter
9	100	8K471828	MT115	TTR-1.5-02		ZY2D5 Output Plate Bypass
10	0.02	24A470628	TP423	S-4-02		ZY1S2 AF Screen Bypass
11	0.02	8K471828	MT127	TTR-1.5-02		D74S2 Line Isolation
12	0.05	8K471828	MT135	TTR-1.5-02		ZY1S2 AVC Filter
13	0.02	8K471828	MT127	TTR-1.5-02		ZY1S2 Fil. Bypass
14	0.02	8K471828	MT127	TTR-1.5-02		ZY1S2 RF Bypass
15	4700	21B470567	MP235	NO. 5-31	1FM-31 1468-0001	SW5T1 Osc. Screen Decoupl.
16	100	21K77373	MP235	NO. 5-31	1FM-31 1468-0001	SW5T1 Audio Coupling Cer.
17	100	21K77373	MP235	NO. 5-31		SW5T1 AF Plate Bypass Cer.
18	4700	21B470567				SW5T1 Diode RF Filter Cer.
19	50	21K77373	MP225	NO. 5-45	1FM-45 1468-00005	SW5Q5 Audio Coupling Cer.

Twind same number of turns of wire on replacement as on original.

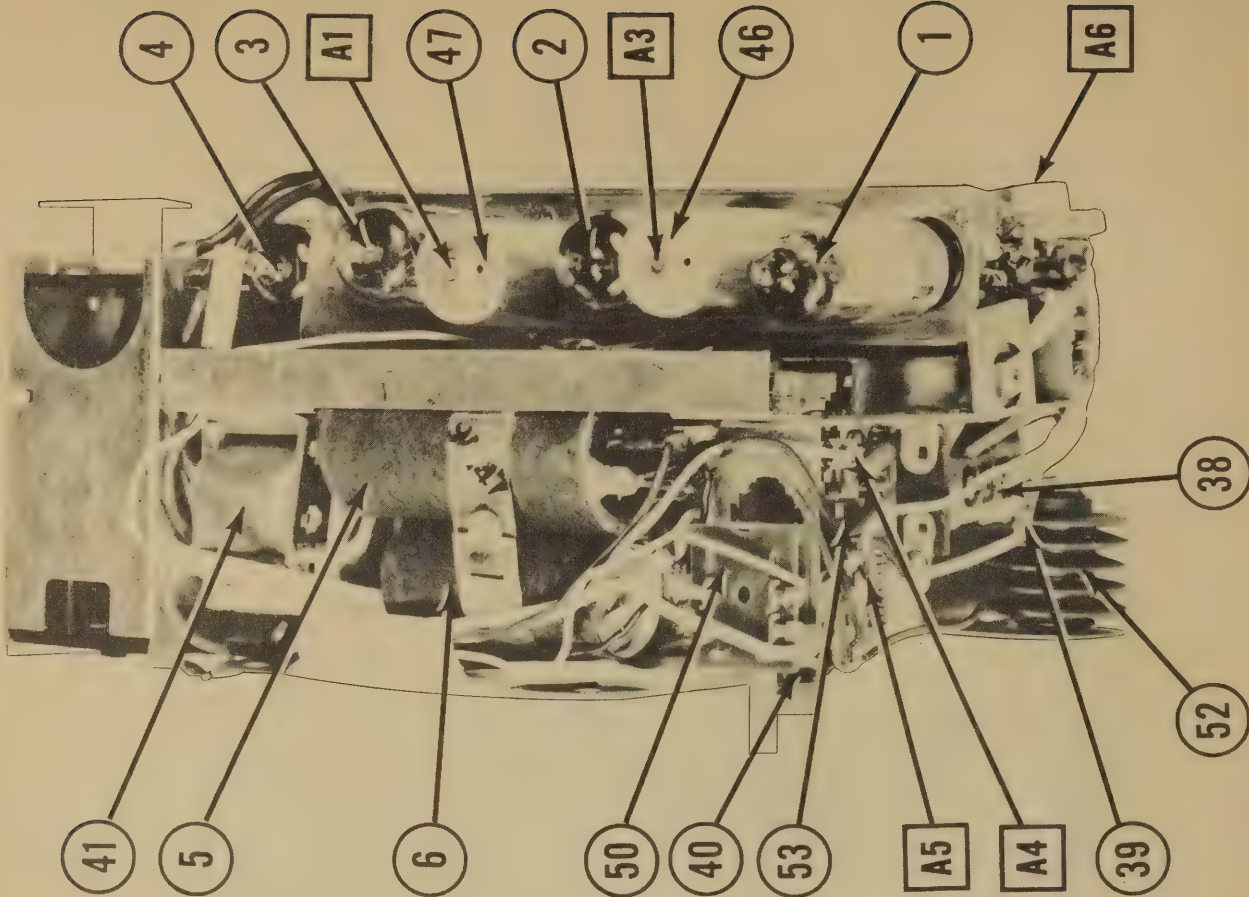
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		MOTOROLA PART No.	MALLORY PART No.	IRC PART No.	
20	1 Meg.	18A471705			Volume Control

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		MOTOROLA PART No.	MALLORY PART No.	IRC PART No.	
21	4.7 Meg.	6R2122		BTS-4.7 Meg.	Y1-VI.-Grn. Converter Grid
22	100K Ω	6R6031		BTS-100K	Br.-Blk.-Bl. Osc. Grid
23	22K Ω	6R6397		BTS-22K	Red-Red-Or. Converter Screen Decoupling
24	10 Meg.	6R2109		BTS-10 Meg.	Br.-Blk.-Blue IF Grid
25	22K Ω	6R6406		BM-22	Red-Red-Blk. Filament String
26	4.7K Ω	17K77629		BTS-4.7	Y1.-VI.-Gold Filament String
27	3.3 Meg.	6R2118		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
28	68K Ω	6R6001		BTS-68K	Blue-Gray-Or. Series Volume Control
29	10 Meg.	6R6406		BM-10 Meg.	Br.-Blk.-Blue AF Grid
30	390 Ω	6R5554		BM-390	Or.-White-Br. Filament String
31	1 Meg.	6R6004		BTS-1 Meg.	Or.-Blk.-Grn. AF Plate Load
32	4.7 Meg.	6R2122		BTS-4.7 Meg.	Y1.-VI.-Grn. AF Screen Dropping
33	3.3 Meg.	6R2118		BTS-3.3 Meg.	Or.-Or.-Grn. Output Grid
34	270 Ω	6R6432		BM-270	Red-VI.-Br. Filament String
35	680 Ω	6R6040		BTS-680	Blue-Gray-Br. Filament String
36	220K Ω	6R6015		BTS-220K	Red-Red-VI. Output Grid
37	820 Ω	6R6269		AB-150	Gray-Red-Br. Bias
38	150 Ω	6R6036		BTS-3300	Surge Limiter
39	1000 Ω			ABA-2000#	Or.-Or.-Red Filter
40	1000 Ω				{ Filament Dropping
41	1000 Ω				

#Set slider at 1000 Ω from one end.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	THORDARN PART No.	
	PRI.	SEC.	PRI.	SEC.				
41	68000	3.70	3650	.50	25B470662			

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	JENSEN PART No.		
42A	FIELD PM	VC IMP. 3.7Ω	50B470620 50B478023			Used in Model 5A7A only
B						
43	CONV DIA. 3-3/8"	VC DIA. 1/2"	NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
44A	Loop Ant.		2.7Ω	24B470803		Model 5A7
B	Loop Ant.			24A478008		Model 5A7A
45A	Osc. Coil	2.5Ω	10Ω	24A25548		Model 5A7
B	Osc. Coil			24A478022		Model 5A7A
46	Input IF	20Ω	22Ω	24B470894		
47	Output IF	44Ω	44Ω	24B470896		

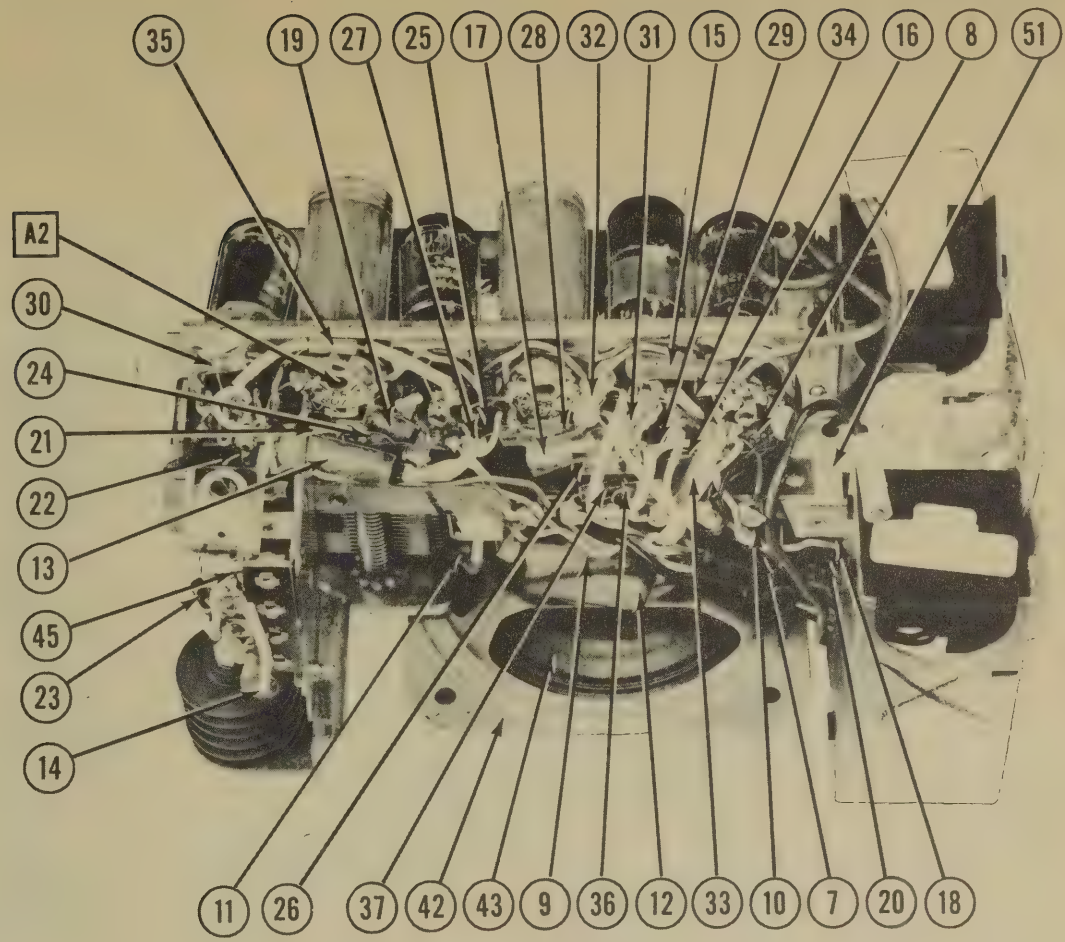
BATTERIES

BATTERIES						
ITEM No.	VOLTAGE	MOTOROLA PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
48	1 1/2V "A"		#950			2 Used in Parallel
49	6 1/2V "B"			#467		

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
50	On-Off Switch	40A470937	AC-DC-Batt. (Slide) AC-DC-Batt. (Rotary) Selenium (17-372 MTF, 17-240 MTF) Model 5A7 Model 5A7-A Osc. Adj. Early Model 5A7 only Late Model 5A7 only
51A	Switch	40A470619	
B		40B471927	
52	Rectifier	48B478111	
53A	2 Gang Var. Cap.	19B470623	
B	" "	19B478016	
A6	Padder	20A471206	
		20K478061	

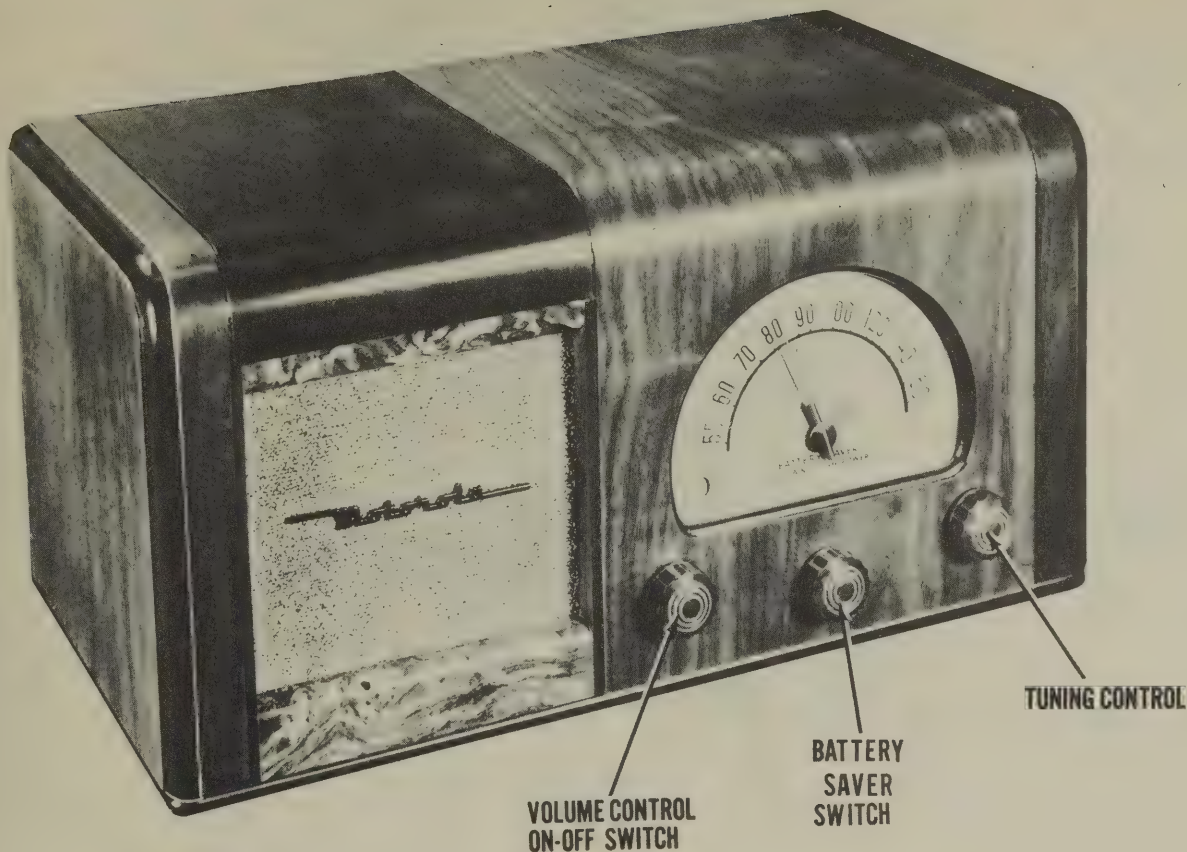
CHASSIS—BOTTOM VIEW



1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MOTOROLA MODEL 47B11
(Ch. HS-72) BATTERY OPERATED

MOTOROLA MODEL 47B11
(Ch. HS-72) BATTERY OPERATED



MOTOROLA MODEL 47B11 (Ch. HS-72)

TRADE NAME	Motorola, Model 47B11 (Ch. HS-72)
MANUFACTURER	Motorola, Inc., 4545 Augusta Blvd., Chicago, Ill.
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FOUR)	Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output.
POWER SUPPLY	1.5 Volts "A" Supply and 90 Volts "B" Supply in Pack Form
RATING	250MA @ 1.5V DC and 12MA @ 90V DC
TUNING RANGE—BROADCAST	538-1720KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to grid cap. 1A7. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust, for maximum output.
2	200MMFD	High side to ext. ant. lead. Low side to ext. ground lead.	1600KC	1600KC	"	A5	Adjust for maximum output. The trimmer opposite A5 is a factory adjustment and should be changed only if receiver will not calibrate with A5.
3	200MMFD	"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 12/47 SET #29 FOLDER #4719-17

PARTS LIST AND DESCRIPTIONS

MOTOROLA MODEL 47B11 (Ch. HS-72)
BATTERY OPERATED

CHASSIS—TOP VIEW

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
1	Converter	1A7GT	1A7GT	7Z	
2	1st. Amp.	1N5GT	1N5GT	5Y	
3	Dec.-AF	1H5GT	1H5GT	5Z	
4	Power Output	3A5GT	3A5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MOTOROLA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
5	10	23A14727	TC42	M-10-150	UT-121	BR12L5
6	.5	898822	TP431	SNH-4-5	TC-25	484-.5
7	.005	898813	TP408	8-6-005	TC-25	684-.005
8	.006	898813	TP408	8-6-006	TC-25	684-.006
9	.002	898824	TP409	8-6-002	TC-22	484-.002
10	.1	200	898808	8-4-1	TC-1	484-.1
11	.01	400	898809	8-4-01	TC-11	484-.01
12	.01	400	898809	8-4-01	TC-11	484-.01
13	.05	400	898818	8-4-05	TC-15	484-.05
14	100	500	21R6641	FO-8-31	1FM-31	1468-0001
15	100	500	21R6641	FO-8-31	1FM-31	1468-0001

CONTROLS

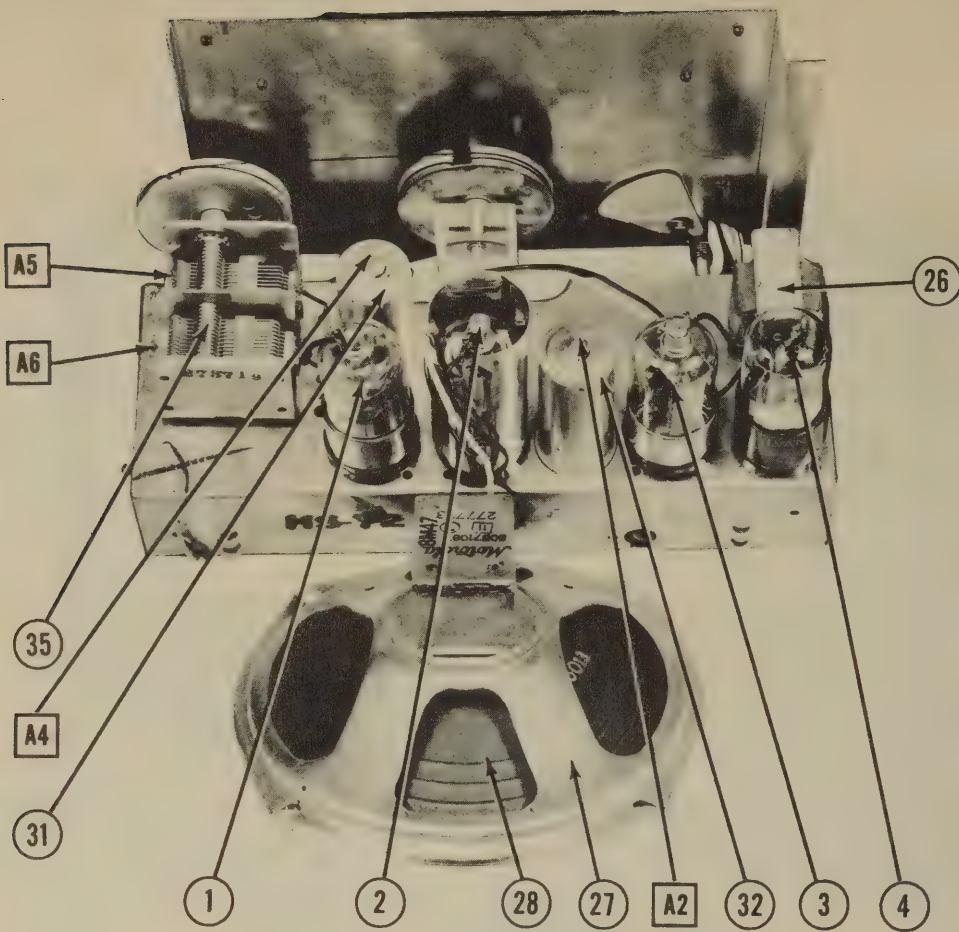
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MOTOROLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	1 Meg. B Switch	18K77615	PK402	D13-137	AK-63-Z	Volume Control Attach to 16A per instructions
17	2.2 Meg. C Switch	Not Req.	Not Req.	E 42	SN-A2	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		MOTOROLA PART No.	IRC PART No.	
17	2.2 Meg.	6R3927	BTS-2.2 Meg.	Red-Red-Grm. AVC Network
18	220K Ω	6R6015	BTS-220K	Red-Red-Yl. Oscillator Grid
19	47K Ω	6R6056	BTS-47K	Yl.-Yl.-Or. Converter Screen Dropping
20	2.2 Meg.	6R3927	BTS-2.2 Meg.	Red-Red-Grm. I/F Grid
21	8.2 Meg.	6R5585	BTS-8.2 Meg.	Gray-Red-Grm. AF Grid
22	1 Meg.	6R6004	BTS-1 Meg.	Br.-Blk.-Grm. AF Plate Load
23	1 Meg.	6R6004	BTS-1 Meg.	Br.-Blk.-Grm. Output Grid
24	390 Ω	6R5554	BW-390	Or.-White-Br. Bias
25	390 Ω	6R5554	BW-390	Or.-White-Br. Battery Saver

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	
26A	1500 Ω 4.0 Ω	25B76952	A-3879*	T22847*	*Drill new mounting holes. Alternate Transformer
B		25B76957		A-2932*	



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		MOTOROLA PART No.	JENSEN PART No.	
27	FIELD PM 4.02 VC DIA. 6 1/4"	50B71087	ST-110 Mod. P6-V	
28		NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

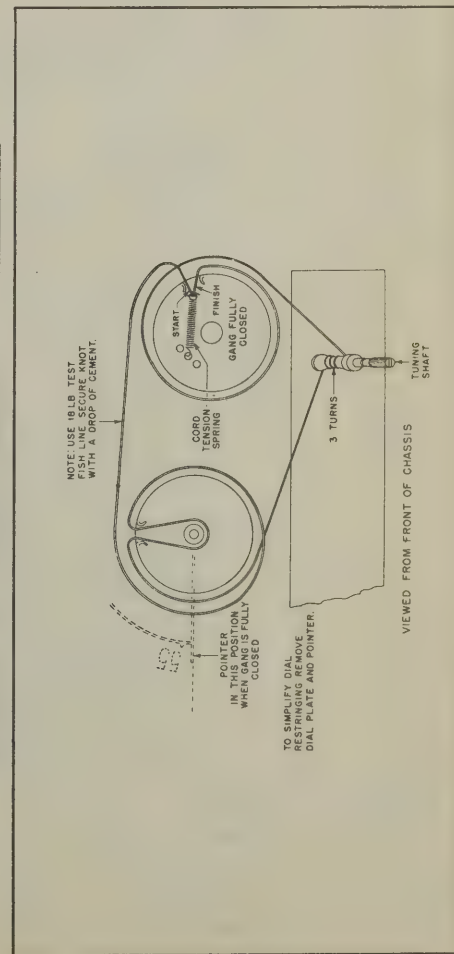
ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		MOTOROLA PART No.	MEISSNER PART No.	
29	Ant. Coil	24A30442	14-1026	Tadd 50MFD from grid to high side tuning cap.
30	Osc. Coil	24A27349	14-1040†	
31	Input IF	24B77677	16-6666	
32	Output IF	24B70531	16-6667	

BATTERIES

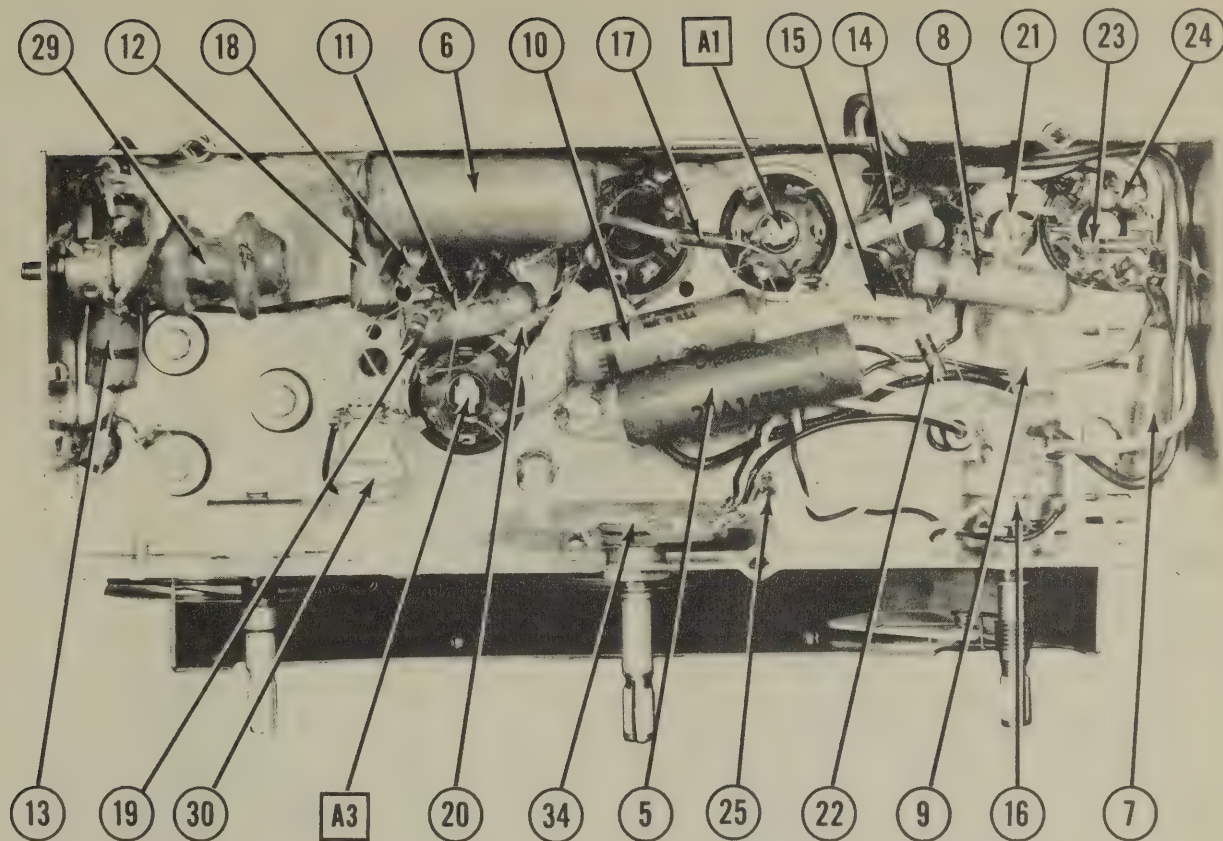
ITEM No.	VOLTAGE	MOTOROLA PART No.	EVEREADY		INSTALLATION NOTES
			"A"	"A-B"	
33	1 1/2V "A" 90V "B"			#758	

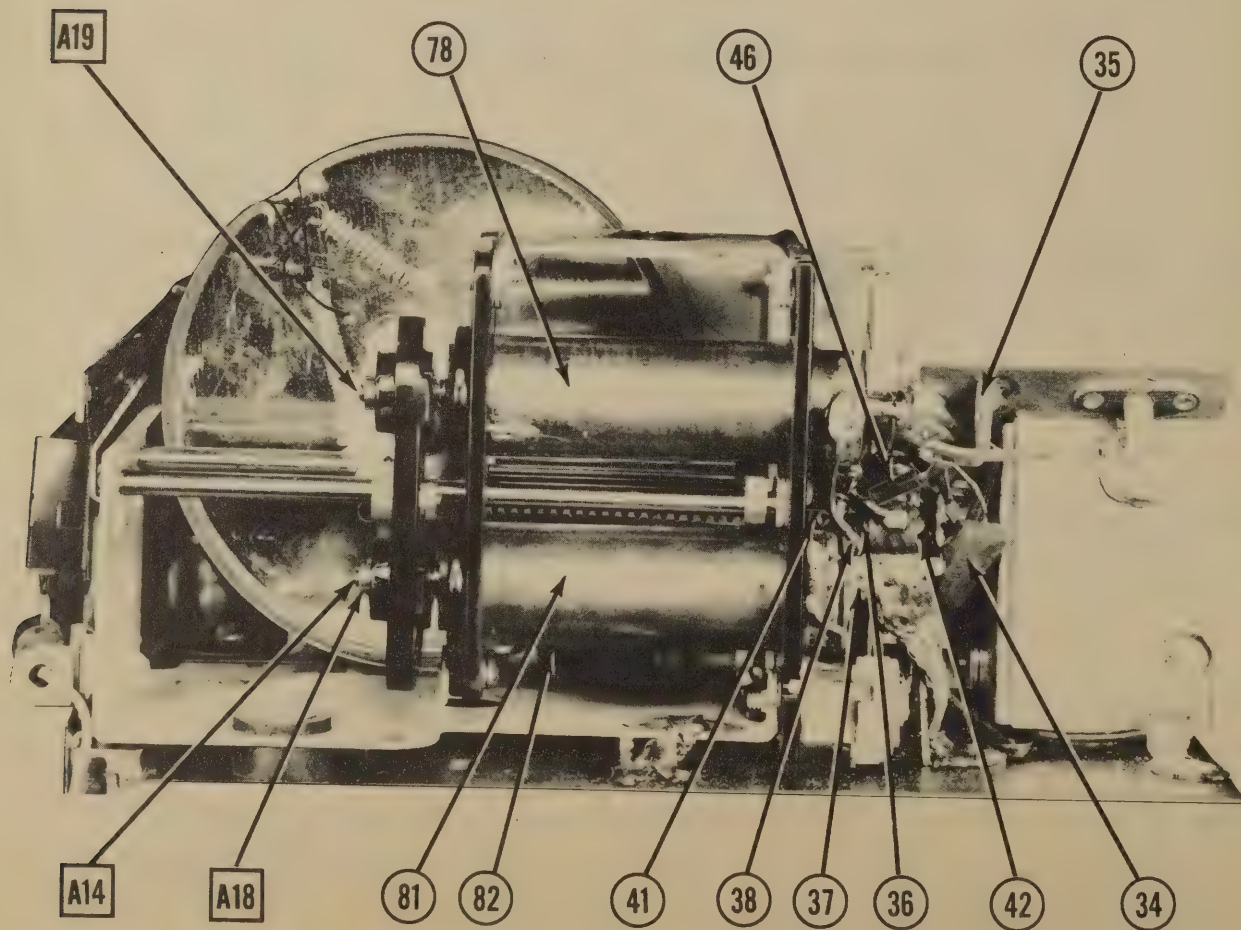
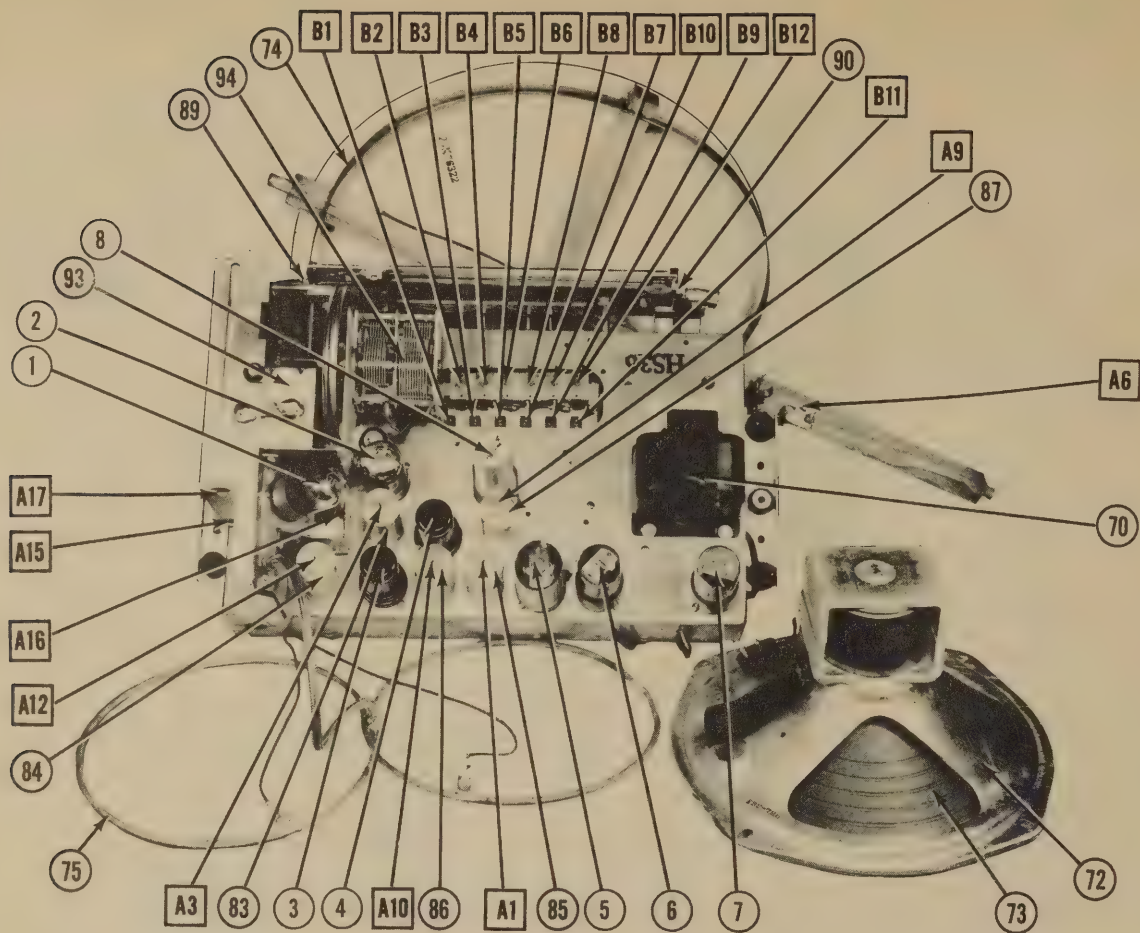
MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
34	Switch	40K77620	Battery Saver (28-460MFF, 26-192MFF)
35	2 Gang Var. Cap.	1X77683	
	Pointer	52A77632	Crystal
	Dial Scale	34B77621	
	Dial	61B77625	

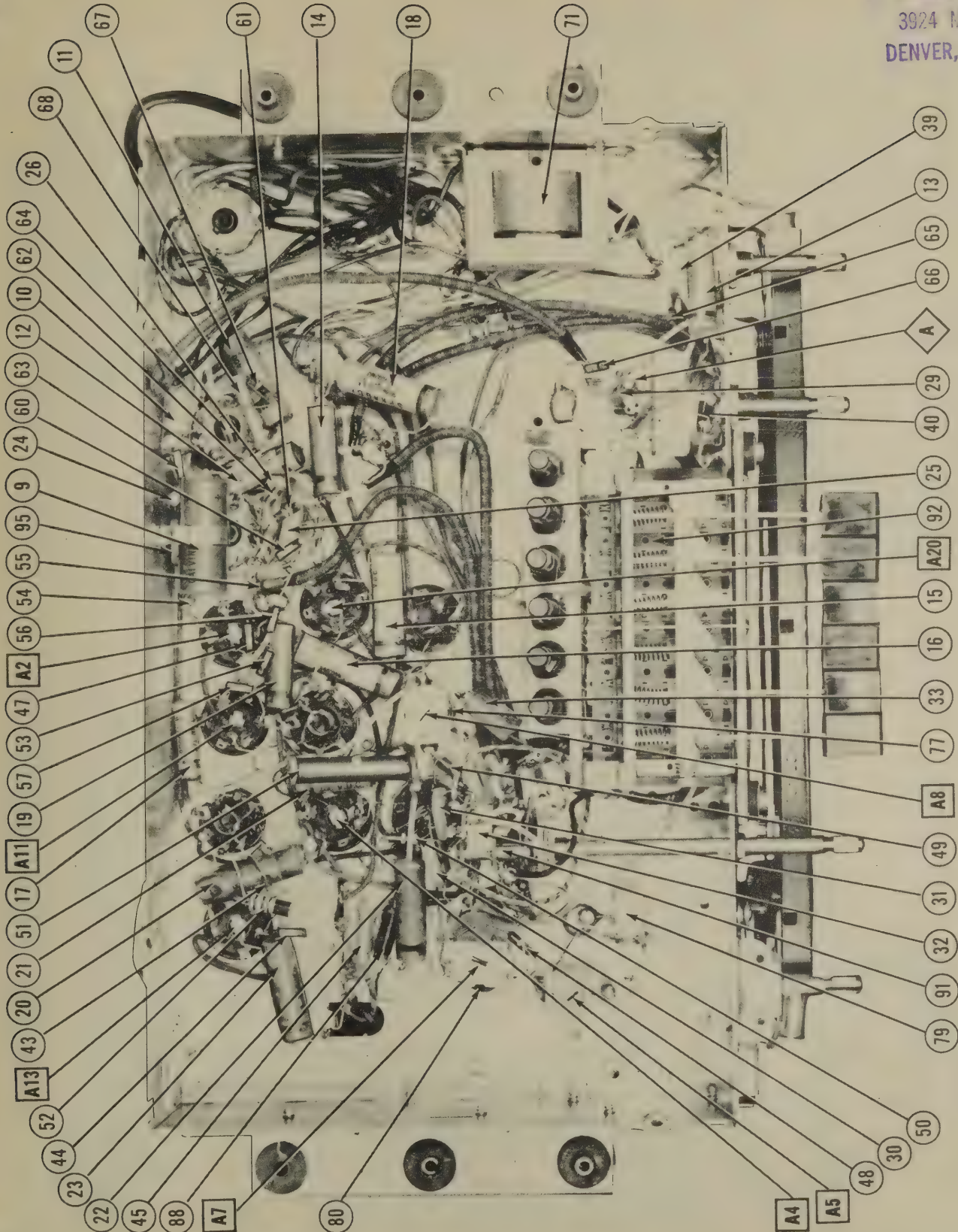


CHASSIS—BOTTOM VIEW





PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



MOTOROLA MODELS 75F31 (Ch. HS-36),
75F31A, 75F31B (Ch. HS-36A),
76F31 (HS-98) PAGE 3

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT	
1	1st & 2nd FM Converter	7F8	7F8	8BW
2	BC & SW Conv.	7C7	7C7	8AL
3	1st IF Amp.	6S97	6S97	8BK
4	2nd IF Amp.	6S97	6S97	8BK
5	2nd IF AF Amp.	7M7	7M7	8BL
6	Det.-AVC-AF	6S8GT	6S8GT	8CB
7	Power Output	6K6GT	6K6GT	78
8	Rectifier	5Y3GT	5Y3GT	7AC

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MOTOROLA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
9A	30 CAP.	23427718	FP331	DY-311	EL-323	AF4414A
9B	350					
9C	30					
10	25					
11	100					
12	1.0	23K77635	TC42	M-10-150	UT-121	FRS150-10
13	.005	889813	TP408	8-6-005	TC-25	684-005
14	.005	889813	TP426	8-6-005	TC-15	684-005
15	.005	889813	TP408	8-6-005	TC-25	684-005
16	.005	889813	TP426	8-6-005	TC-15	684-005
17	.01	889801	TP421	8-4-01	TC-11	484-01
18	.01	889801	TP426	8-4-01	TC-11	484-01
19	.01	889809	TP421	8-4-01	TC-11	484-01
20	.01	889809	TP426	8-4-01	TC-11	484-01
21	.01	889801	TP421	8-4-01	TC-11	484-01
22	.01	889801	TP426	8-4-01	TC-11	484-01
23	.01	889801	TP421	8-4-01	TC-11	484-01
24	.01	889801	TP426	8-4-01	TC-11	484-01
25	.01	889801	TP421	8-4-01	TC-11	484-01
26A	4000	21R6839	M245	M0.5-35	1FM-35	1468-0005
27	50	21R6842	M245	M0.5-35	1FM-35	1468-0005
28	50	21R6842	M245	M0.5-35	1FM-35	1468-0005
29	500	21R6839	M245	M0.5-35	1FM-35	1468-0005
30	500	21R6839	M245	M0.5-35	1FM-35	1468-0005
31	500	21R6842	M245	M0.5-35	1FM-35	1468-0005
32	500	21R6842	M245	M0.5-35	1FM-35	1468-0005
33	500	21A25020	M245	M0.3-21	1FM-21	1468-001
34	500	21R2724	M245	M0.3-21	1FM-21	1468-0005
35	500	21A112247	M240	M0.5-35	1FM-35	1468-0005
36	500	21R2729	M240	M0.5-35	1FM-35	1468-0005
37	500	21A16320	M240	M0.5-35	1FM-35	1468-0005
38	500	21A112247	M240	M0.5-35	1FM-35	1468-0005
39	500	21R6839	M245	M0.5-35	1FM-35	1468-0005

Note 1 - Used in chassis HB-36A & HB-98 only. Note 2 - Used in chassis HB-36 only.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MOTOROLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
39A	1 Meg. Switch	18K74891	TP240	D13-137X	AT-109	Volume Control
39B	1 Meg. Switch	18K74891	TP240	D13-137X	AT-109	Attach to 39A per instructions
40	1 Meg. Switch	18A28062	M26	41	SW-A	Tone Control & Radio-Phono Switch

PARTS LIST AND DESCRIPTIONS (Continued) R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
74A	BC Loopant.	1.5Ω		24K76322		Model 75F31, 75F31A, 75F31B
75	BC Loopant.			24K71598		Model 76F31
76	FM Ant.	0.2		1X76326		
77	SW Ant.			24A74822	14-1044	
78	FM Ant. Coil	3.5Ω				
79	BC Ant. Coil	0.2		24A74821	14-1040	Items 78, 81, 82 are slug tuned, ganged together and part of FM tuning assembly.
80	SW Osc. Coil	6Ω		24A74820	14-1046	
81	FM Osc. Coil	1.8				
82	FM Var. If	0.2				
83	Coil	13Ω		24B75487		
84	FM Input If	2.3Ω		24B75481		
85	FM Output If	15Ω		24B75487		
86	FM Output If	15Ω		24B75473		
87	FM Discrim.	3Ω		24B75456		
88	RF Choke	.1Ω		24A74989		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	MOTOROLA PART No.	
89	Bayonet	6-8	0.15	Brown	65X11854	Type 47
90					65X11854	

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
91	Switch	40B75236	Band (4 Position)
92	Pushbutton Tuner	1X76440	Complete Assembly
93	2 Gang Var. Cap.		
94	Trimmer		
A5		19B72560	(17-523MFF, 12-244MFF)
A6		20A75234	BC Osc. Adj.
A7		20A71226	BC Ant. Adj.
A8		20A71141	SW Osc. Adj.
A9		20A71141	SW Ant. Adj.
A15		20K74540	FM Osc. Adj.
A16		20K74940	FM Var. IF Adj.
A17	Dial Pointer	52B74418	
	Dial Scale	34B74422	

PUSHBUTTON ADJUSTMENTS

Tuning ranges of the buttons from right to left are 900-1600KC, 750-1350KC, 650-1200KC, 650-1200KC, 600-1050KC, 540-530KC. Make a list of stations to be set up ranging from high to low frequency making certain that each station falls within the range of the button to be set up.

1. Turn on receiver and allow it to warm up for about 15 minutes.
2. Turn bandswitch to pushbutton.
3. Push in first button on right and adjust B1 to tune in station.
4. Adjust B2 for maximum volume.
5. To set up the remaining buttons follow the same procedure outlined above adjusting B3, B5, B7, B9, B11 to tune in stations and B4, B6, B8, B10, B12 for maximum volume.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	
41	10 Meg.	1/2	6R2109	BTS-10 Meg.	Br.-Blk.-Blue 1st FM Converter Grid
42	15K Ω	1	6R6013	BTA-15K	Br.-Grn.-Or. 1st FM Converter Plate Load
43	33K Ω	1	6R6410	BTS-33K	Or.-Or.-Or. Bleeder
44	15K Ω	1	6R6477	BTS-15K	Br.-Grn.-Or. Decoupling
45	22K Ω	1	6R6313	BTA-22K	Red-Red-Or. Decoupling
46	1.5 Meg.	1	6R3966	BTS-1.5 Meg.	Br.-Grn.-Grn. 2nd FM Converter Grid
47	2.2 Meg.	1	6R6433	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
48	220 Ω	1	6R6270	BW-2-220	Red-Red-Br. Parasitic Suppressor
49	22K Ω	1	6R6397	BTS-22K	Br.-Red-Or. AM Oscillator Grid
50	470K Ω	1	6R6032	BTS-470K	Yl.-Vl.-Yl. AM Converter Screen Dropping
51	12K Ω	1	6R3967	BTA-39K	Or.-White-Or. 1st IF Screen Dropping
52	39K Ω	1	6R5588	BTS-39K	Br.-Blk.-Red 1st IF Plate Decoupling
53	1000 Ω	1	6R6301	BTS-1000	Vl.-Vl.-Or. Diode Rf Filter
54	47K Ω	1	6R6056	BTS-47K	Br.-Blk.-Grn. AVC Network
55	1 Meg.	1	6R6004	BTS-1 Meg.	Red-Red-Or. AVC Network
56	22K Ω	1	6R6397	BTS-22K	Br.-Grn.-Vl. 2nd IF Transformer Shunt
57	150K Ω	1	6R6398	BTS-150K	Or.-Gr.-Br. Balancing Resistor-See Note 1
58	330 Ω	1	6R6010	BW-1-330	Red-Red-Or. De-emphasis - See Note 1
59	22K Ω	1	6R6028	BTS-22K	Red-Red-Or. Ratio Detector Load
60	22K Ω	1	6R6028	BTS-22K	Br.-Blk.-Or.
61	10K Ω	1	6R6350	BTS-10K	Yl.-Vl.-Grn. AF Grid
62	4.7 Meg.	1	6R6446	BTS-4.7 Meg.	Blue-Gray-Or. AF Plate Load
63	68K Ω	1	6R6001	BTS-68K	Yl.-Vl.-Yl. Output Grid
64	470K Ω	1	6R6032	BTS-470K	Or.-Or.-Or. Tone Compensation
65	33K Ω	1	6R6410	BTS-33K	Br.-Blk.-Grn. Series Phono
66	1 Meg.	1	6R6004	BTS-1 Meg.	Br.-Blk.-Blk. Bias
67	10 Ω	1	6R5621	BW-1-10	Red-Vl.-Br.
68	270 Ω	1	6R6035	BW-1-270	Red-Vl.-Gold Series Pilot Light-See Note 2
69	2.7 Ω	1	17K77634	BW-2-2.7	

NOTE 1 - Not used in Model HS-36
NOTE 2 - Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	MOTOROLA PART No.	STANCOR PART No.	THORDARSON PART No.
70	117V AC 600V CT @ .063A @ 2.0A @ 2.4A @ .59A	5.0V AC 6.3V AC	SEC. 3	25B70598	P-4078*	T22R31*

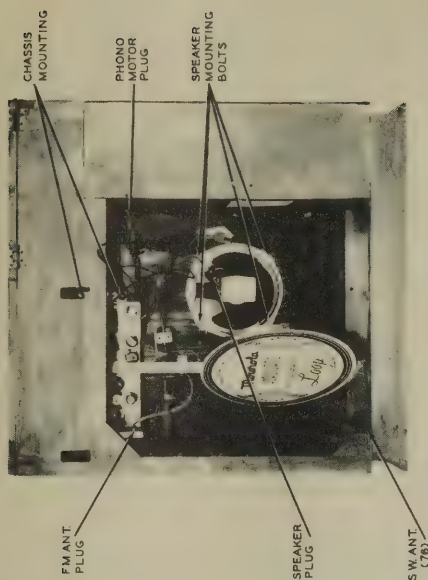
*Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		
	IMPEDANCE	DC RES.	SEC.	MOTOROLA PART No.	STANCOR PART No.	THORDARSON PART No.
71	4100 Ω	3.5 Ω	400 Ω	25B75463	A-3823	T22887

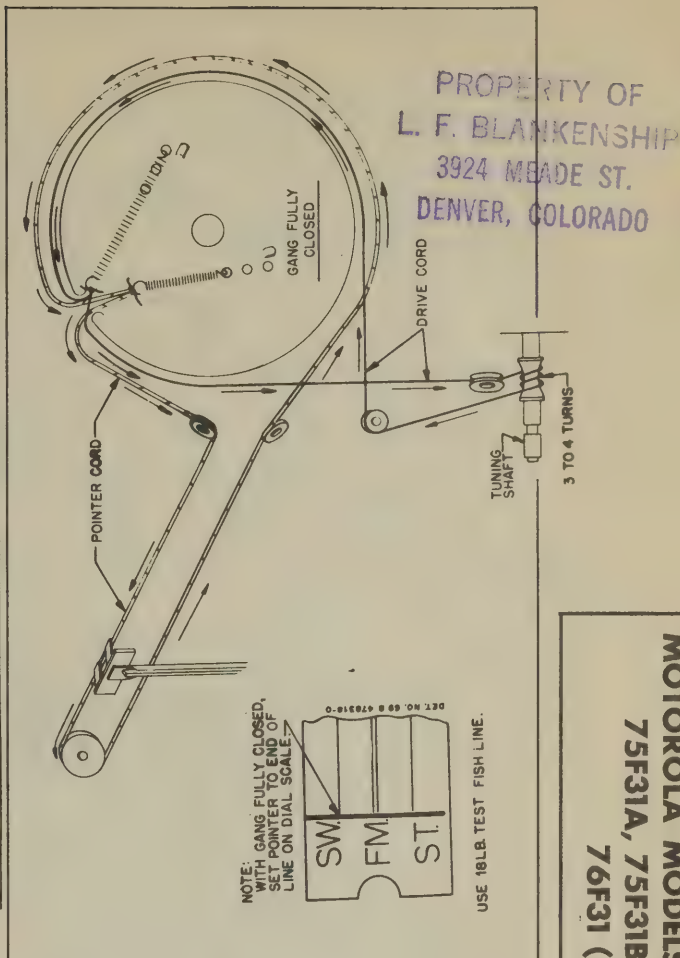
SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		
	FIELD RES.	VC ITP.	SEC.	MOTOROLA PART No.	JENSEN PART No.	INSTALLATION NOTES
72	1000 Ω	3.5 Ω		50K75592	ST-175#	#Shunt field coil with 2500 Ω 10 watt resistor.
73	CONG DIA. 1"	VC DIA.				NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT



DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove loop antenna leads and remove loop from cabinet.
3. Loosen clamps holding FM antenna in cabinet. Remove FM antenna plug from chassis. Remove FM antenna from cabinet.
4. Remove speaker plug from speaker.
5. Disconnect phono-motor plug.
6. Remove phono-pickup plug from under record changer.
7. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.
8. Remove six screws holding chassis in cabinet. Remove chassis from cabinet.

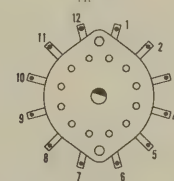


MOTOROLA MODELS 75F31 (Ch. HS-36),
75F31A, 75F31B (Ch. HS-36A),
76F31 (HS-98)
PAGE 5

3924 MEADE ST.
DENVER, COLORADO



SEQUENCE: SW
BC
PB
EM



ALL SWITCH CONTACTS
NUMBERED AS SHOWN
ABOVE FROM SHAFT
END OF SWITCH

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4719-18

RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

‡ RESISTANCE READINGS TAKEN IN FM POSITION.
RADIO-PHONO SWITCH IN RADIO POSITION.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

FM ALIGNMENT USING AM SIGNAL GENERATOR

Use a 30% amplitude modulated signal throughout entire alignment.
Once the discriminator secondary has been aligned (A20) no further adjustments of the FM circuits should be made.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
6 .001 MFD	High side to Pin 1 (grid) 7F8. Low side to chassis.	4.3MC (amplitude mod.)	FM (Fully clock-wise)	112MC	Across voice coil	A9,A10,A11,A12,A13	Turn A20 out completely then adjust A9,A10,A11,A12, A13 for maximum output.
7 DIRECT	Remove FM loop. Signal gen. across FM loop receptacle.					A14	Set spacing between end of core and bakelite piece to which it is mounted to 1/32".
8 DIRECT	"	90MC	"	90MC	"	A15,A17,A16	Adjust for maximum output.
9 DIRECT	"	105MC	"	105MC	"	A14,A19,A18	Adjust for maximum output. Repeat Steps 8 & 9 until no further improvement can be made making Step 9 final adjustment.
10	Loop (Reconnect FM Loop to chassis.)	"	"	Tune for maximum output.	"	A19	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
11 .001MFD	High side to Pin 1 (grid) 7F8. Low side to chassis.	4.3MC	"	112MC	"	A20	Adjust for zero output.

FM ALIGNMENT USING SIGNAL FM GENERATOR AND OSCILLOSCOPE

Connect synchronized sweep voltage from signal generator to horizontal deflection amplifier of scope. If this voltage is not phased properly resulting in a double trace, insert a 500K Ω variable resistor in series with the sweep voltage terminal and horizontal amplifier terminal. Connect a .002 MFD capacitor across horizontal amplifier terminals. Adjust the variable resistor to give a single trace. (It may be necessary on some scopes to use different values of R and C to get proper pattern.)

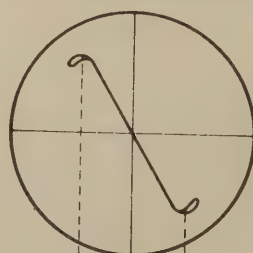
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6 .01 MFD	High side to Pin #4 (grid) of 6SG7 2nd IF Amp. (4). Low side to chassis.	4.3MC (Freq. mod. 60 μ , 250KC sweep)	FM (fully clock-wise)	112MC	Vertical amplifier to Point A. Ground to chassis.	A9	Turn A20 out as far as it will go. Adjust A9 to obtain pattern symmetrical about the vertical axis per Figure 1.
7 .01 MFD	"	"	"	"	"	A20	Adjust for symmetrical pattern of Fig. 2 with maximum straightness of diagonal line and peaks occurring at about 100KC above and below 4.3MC.
8 .001MFD	High side to Pin #4 (grid) of 6SG7 1st IF Amp. (3). Low side to chassis.	4.3MC (Freq. mod. 60 μ , 200KC sweep)	"	"	"	A10,A11	Adjust for symmetrical pattern of previous Step with peaks occurring at a slightly lower deviation.
9 .001MFD	High side to Pin #1 (grid) of 7F8. Low side to chassis.	"	"	"	"	A12,A13	Adjust for symmetrical pattern substantially linear between peaks.
					OUTPUT METER		
10	Disconnect FM Loop.					A14	Set spacing between end of osc. core and bakelite piece to which it is mounted to 1/32".
11 DIRECT	Across FM Loop receptacle.	90MC (30% freq. modulated)	FM	90MC	Across voice coil.	A15,A17,A16	Adjust for maximum output.
12 DIRECT	"	105MC (30% freq. modulated)	"	105MC	"	A14,A19,A18	Adjust for maximum output. Repeat Steps 11 & 12 several times until no further improvement can be made making Step 12 the final adjustment.
13	Loop (Reconnect FM Loop to Chassis)	"	"	Tune for maximum output.	"	A17	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.



4.3 MC.

PATTERN WITH DISCRIMINATOR
PRIMARY CORRECTLY ADJUSTED

FIGURE 1



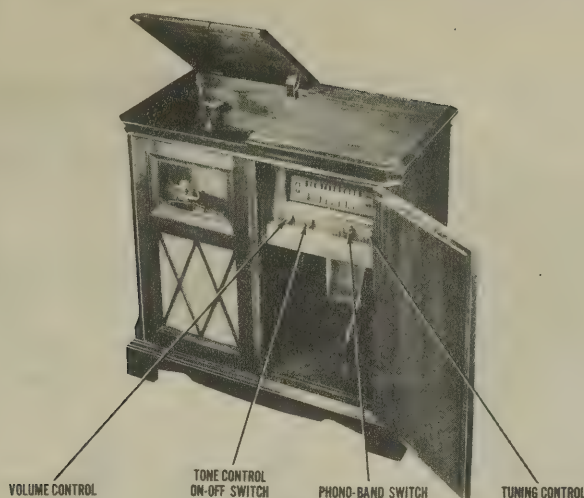
4.2 MC. 4.3 MC. 4.4 MC.

PATTERN WITH DISCRIMINATOR
SECONDARY CORRECTLY ADJUSTED.

FIGURE 2

FOR AM ALIGNMENT SEE FRONT PAGE.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



OLYMPIC MODEL 7-724

TRADE NAME Olympic, Model 7-724
MANUFACTURER Olympic Radio & Television Inc., 34-01 38th Ave., Long Island City 1, N.Y.
TYPE SET AC Operated Radio-Phono Combination, 2 Band Superheterodyne Receiver with Loop Ant.
TUBES (EIGHT) Types, 6SG7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6SQ7 Phase Inv., 6K6GT Power Output, 6V6GT Power Output, 5Y3GT Rectifier.

POWER SUPPLY 105-125V AC

RATING .73A @ 117V AC

TUNING RANGE—BROADCAST 535-1700KC

SHORT WAVE 5.7 -18.4MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to vertical reference line under the letters "SW". Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	BC (center position)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output, then repeat.
2 .1 MFD.	High side to front stator of tuning cap. Low side to chassis.	1700KC	"	1700KC	"	A5	Adjust for maximum output
3 .1 MFD.	"	1500KC	"	Tune for maximum output.	"	A6	" " " "
4 .1 MFD.	"	600KC	"	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 & 4.
5	Loop	"	"	"	"	A8	Fashion loop of several turns of wire and radiate signal into loop of receiver. Rock tuning cap. and adjust for maximum output.
6	"	1500KC	"	"	"	A9	Adjust for maximum output. Repeat Steps 5 & 6.
7 400Ω carbon res.	High side to ext. ant. terminal. Low side to chassis.	18MC	SW (fully clockwise)	18MC	"	A10	Tighten A10 firmly. Loosen until second peak is obtained. Adjust for maximum output. Check for image by tuning signal generator to 18.91MC. Signal should be heard. If it is not, retune sig. gen. to 18MC and open A10 until next peak is obtained. Adjust for maximum output. Recheck for image.
8 "	"	"	"	Tune for maximum output.	Across voice coil	A11, A12	Preset A11 & A12 by tightening firmly and loosening until first peak is obtained. Rock tuning cap. and adjust for maximum output.

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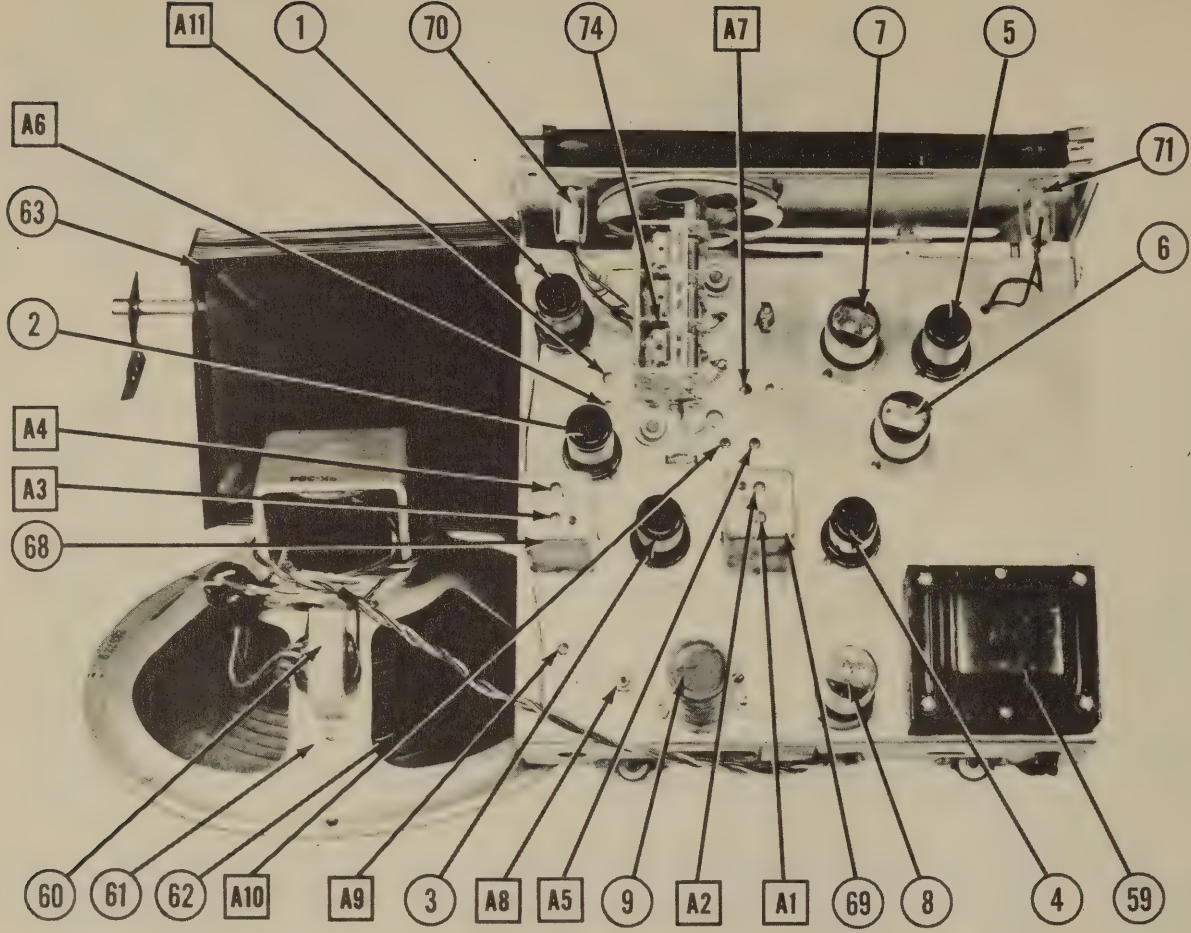
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OLYMPIC
MODEL 7-724

OLYMPIC
MODEL 7-724

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		OLYMPIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	CORNEILL-DUBILIER PART No.
9A	30	C0768	FP339	DY-313	EL-330	UP2245C
10	450					
11	20					
12	25					
13	400					
14	.05					
15	.002					
16	.002					
17	.005					
18	.005					
19	.001					
20	.001					
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74	.001					
75	.001					

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		OLYMPIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
33A	2 Meg.	PT-567	TT254	D13-139X	AT-115	Volume Control
34A	3 Meg.	PT-568	UM165	D13-140	AM-67-Z	Attach to 33A per instructions
35	Switch				SW-4	Attach to 34A per instructions

RESISTORS

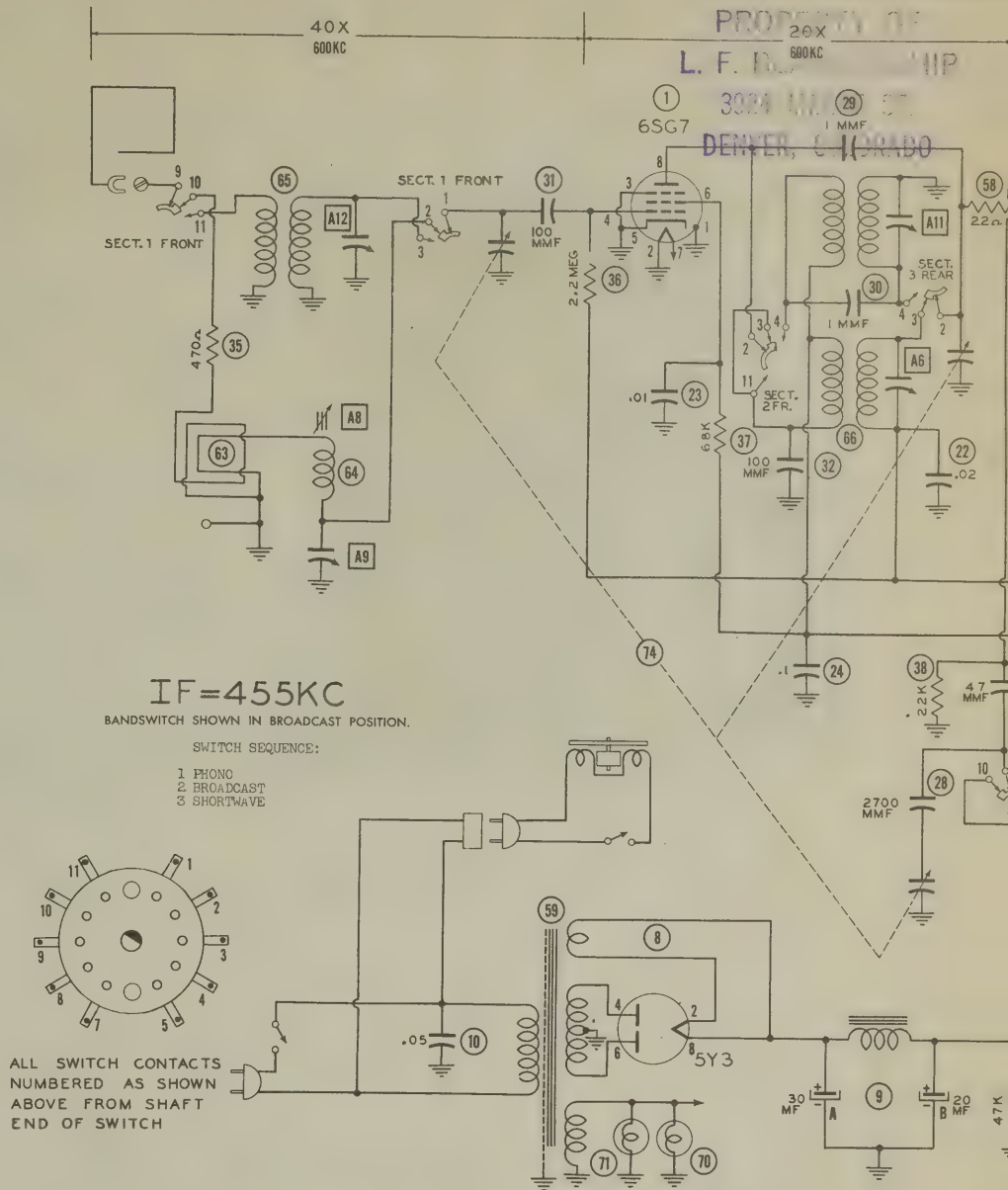
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		OLYMPIC PART No.	MALLORY PART No.	IRC PART No.		
35	470K	REB-471M		BTS-470		Yl.-Vl.-Br. Antenna Loading
36	2.2 Meg.	REB-225M		BTS-225		Red-Red-Grn. RF Grid
37	680K	REB-683K		BTS-68K		Blue-Gray-Or. RF Screen Dropping
38	220K	REB-222M		BTS-22K		Red-Red-Or. Oscillator Grid
39	220K	REB-222K		BTS-22K		Red-Red-Or. Converter Screen Dropping
40	6800K	REB-682K		BTS-6800		Blue-Gray-Red Oscillator Coil Shunt
41	2.2 Meg.	REB-225M		BTS-225		Red-Red-Grn. AVC Network
42	470K	REB-471M		BTS-470K		Yl.-Vl.-Yl. Diode Load
43	330K	REB-334M		BTS-330K		Or.-Or.-Yl. Series Photo
44	220K	REB-224M		BTS-220K		Red-Red-Yl. Photo Shunt

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		RESISTANCE	WATTS	
45	220K	220K	1/2	Red-Red-Br. Decoupling
46	220K	220K	1/2	Red-Red-Yl. Tone Compensation
47	10 Meg.	10 Meg.	1/2	Br.-Blk.-Blue Af Grid
48	470K	470K	1/2	Yl.-Vi.-Yl. Af Plate Load
49	470K	470K	1/2	Yl.-Vi.-Yl. Phase Inverter Plate Load
50	10 Meg.	10 Meg.	1/2	Br.-Blk.-Blue Phase Inverter Grid
51	470K	470K	1/2	Yl.-Vi.-Yl. Output Grid
52	470K	470K	1/2	Yl.-Vi.-Yl. Output Grid

CHASSIS—BOTTOM VIEW



Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	6SG7	OV.	OV.	OV.	-.6VDC	OV.	92VDC	6.2VAC
2	6SA7	OV.	6.2VAC	260VDC	93VDC	-5.8VDC	OV.	OV.
3	6SK7	OV.	OV.	OV.	-.5VDC	OV.	83VDC	6.2VAC
4	6SQ7	OV.	-.5VDC	OV.	-.4VDC	-.4VDC	95VDC	6.2VAC
5	6SQ7	OV.	-.5VDC	OV.	OV.	OV.	102VDC	6.2VAC
6	6K6GT	OV.	OV.	260VDC	260VDC	OV.	OV.	6.2VAC
7	6K6GT	OV.	OV.	260VDC	260VDC	OV.	OV.	6.2VAC
8	5Y3GT	OV.	320VDC	OV.	310VAC	OV.	310VAC	260VDC

THE COOPERATION OF THE MANUFACTURER OF THE RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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The stage gain measured values listed above are approximate average operative stage, rather than an absolute value. It should be in mind that it is possible to introduce so many variables into measurement operation, such as, type of equipment used for measurement and placement of probes, the accuracy of alignment, etc., that reading is impractical. AVC is made inoperative and 3-volt substituted for measurement.

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		OLYMPIC PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	68G7	68G7	8BK	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SQ7	6SQ7	8Q	
5	Phase Inv.	6SQ7	6SQ7	8Q	
6	Power Output	6K6GT	6K6GT	7S	
7	Power Output	6K6GT	6K6GT	7S	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

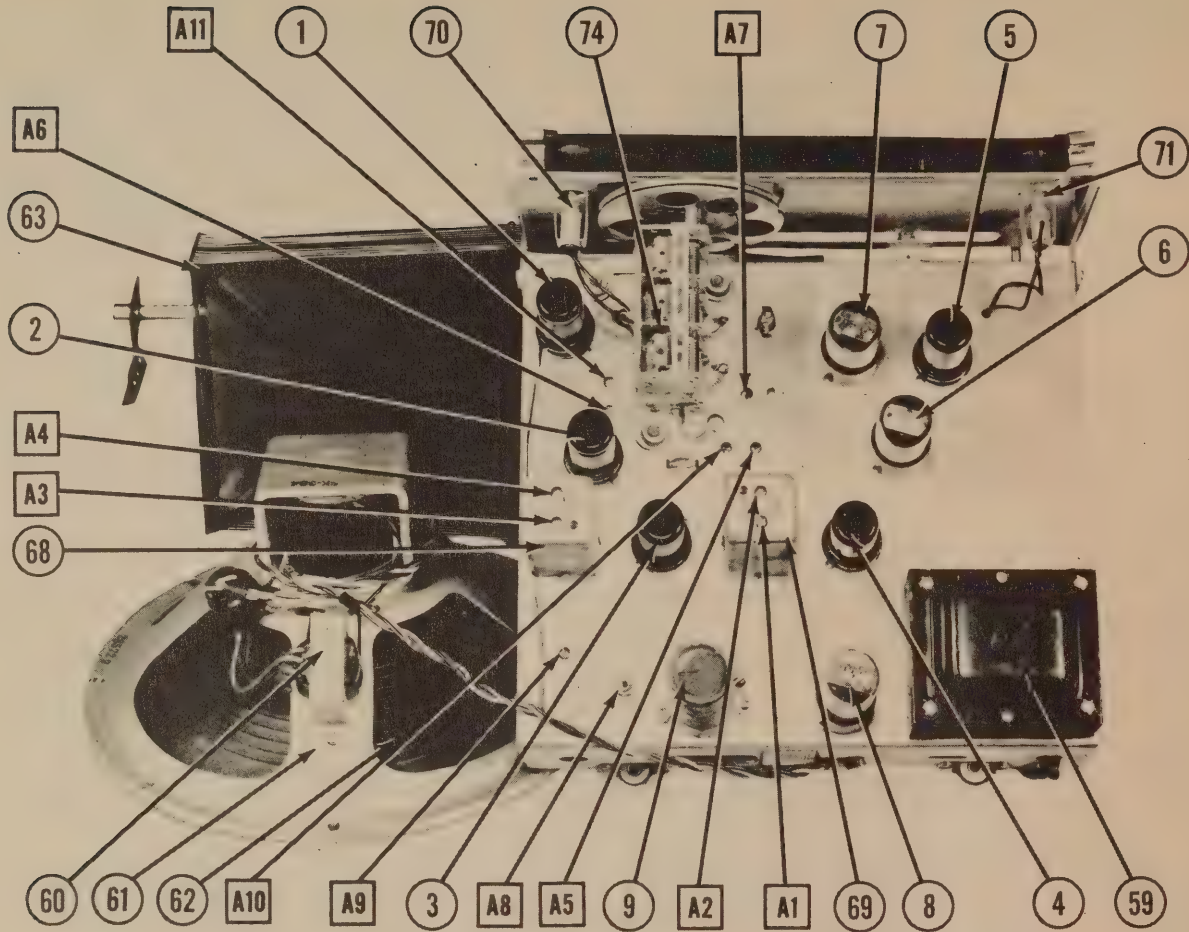
ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	OLYMPIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.		CORNEILL-DUBIER PART No.
9A	30	450	C0768	FP339	DY-313	EL-330	AF444J4A	UF2245C	Filter - Blue
B	20	450							- Red
C	20	25							Cathode Bypass - Yel
10	.10	.05	400						Line Filter
11	.002	500	RCF10M65024	TP426	MPH-4-05	TC-15	484-05	D74S5	Output Plate Bypass
12	.002	500	RCF10M65024	TP405	S-6-002	TC-22	684-002	D76D2	"
13	.005	500	RCF10M65024	TP408	S-6-005	TC-25	684-005	D76D5	Audio Coupling
14	.005	500	RCF10M65024	TP408	S-6-005	TC-25	684-005	D76D5	"
15	.005	500	RCF10M65024	TP408	S-6-005	TC-25	684-005	D76D5	"
16	.002	500	RCF10M65024	TP408	S-6-002	TC-22	684-002	D76D1	Tone Comp.
17	.001	500	RCF10M61024	TP404	S-6-001	TC-21	684-001	D76D1	Audio Coupling
18	.005	500	RCF10M65024	TP410	S-6-01	TC-25	684-005	D76S1	"
19	.01	500	RCF10M65024	TP410	S-6-01	TC-11	684-01	D76S1	IF Screen Bypass
20	.01	500	RCF10M61034	TP410	S-6-01	TC-11	684-01	D76S1	Conv. Screen Bypass
21	.01	500	RCF10M61034	TP410	S-6-01	TC-11	684-01	D76S2	AVC Filter
22	.02	500	RCF10M22034	TP423	S-4-02	TC-12	684-02	D76S1	RF Screen Bypass
23	.01	500	RCF10M61034	TP423	S-6-01	TC-11	684-01	D76S1	Inv. Plate Bypass
24	.1	400	RCF10M41041	TP438	S-4-1	TC-1	684-1	D76S1	RF Bypass Pwr. Supply
25	100	500	RCM20A101M	MC235	M.O.5-31	1FW-31	1468-0001	5W5T1	Inv. Plate Bypass
26	100	500	RCM20A101M	MC235	M.O.5-31	1FW-31	1468-0001	5W5T1	Tone Comp.
27	227	47	RCM20A470M	MC285	M.O.5-31	1FW-31	1468-0001	5W5T1	Osc. Grid
28	2700	300	RCM30B2725	MC285	M.O.5-45	1FW-45	1468-00005	5W5Q5	Fixed Pad
29	1		C0311						RF Coupling Cap.
30	1		C0311						"
31	100	500	RCM20A101M	MC235	M.O.5-31	1FW-31	1468-0001	5W5T1	Fixed Trimmer
32	100	500	RCM20A101M	MC235	M.O.5-31	1FW-31	1468-0001	5W5T1	AF Plate Bypass
33	100	500	RCM20A101M	MC235	M.O.5-31	1FW-31	1468-0001	5W5T1	"

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		OLYMPIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
33A	2 Meg.	PT-567	TH254	D13-139X	AT-115	Volume Control
34A	2 Meg.	Not Req.	SS25	D13-139X	KSS-3	Attach to 33A per instructions
35A	2 Meg.	Not Req.	UN165	D13-140	AT-67-Z	Tone Control
36A	2 Meg.	Not Req.	SS25	D13-140	KSS-3	Attach to 34A per instructions
37A	2 Meg.	Not Req.	SS25	D13-140	SM-A	"
38A	2 Meg.	Not Req.	SS25	D13-140	SM-A	"
39A	2 Meg.	Not Req.	SS25	D13-140	SM-A	"
40A	2 Meg.	Not Req.	SS25	D13-140	SM-A	"
41A	2 Meg.	Not Req.	SS25	D13-140	SM-A	"
42A	2 Meg.	Not Req.	SS25	D13-140	SM-A	"
43A	2 Meg.	Not Req.	SS25	D13-140	SM-A	"
44A	2 Meg.	Not Req.	SS25	D13-140	SM-A	"

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		OLYMPIC PART No.	IRC PART No.	RESISTANCE (WATTS)	
35	470Ω	REB-471M	BTS-470	1/2	Y1.-V1.-Br. Antenna Loading
36	2.2 Meg.	REB-225M	BTS-225	1/2	Red-Red-Grn. Rf Grid
37	68KΩ	REB-682K	BTS-682	1/2	Blue-Gray-Or. Rf Screen Dropping
38	22KΩ	REB-222K	BTS-222	1/2	Red-Red-Or. Oscillator Grid
39	22KΩ	REB-222K	BTS-222	1/2	Red-Red-Or. Converter Screen Dropping
40	680Ω	REB-682K	BTS-682	1/2	Blue-Gray-Red Oscillator Coil Shunt
41	2.2 Meg.	REB-225M	BTS-225	1/2	Red-Red-Grn. AVC Network
42	470KΩ	REB-471M	BTS-471	1/2	Y1.-V1.-Y1. Diode Load
43	330KΩ	REB-334M	BTS-334	1/2	Or.-Or.-Y1. Series Phono
44	220KΩ	REB-224M	BTS-224	1/2	Red-Red-Y1. Phono Shunt



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	OLYMPIC PART No.	IRC PART No.	
45	220Ω	1/4	REB-221M	BW-220	Red-Red-Br. Decoupling
46	220KΩ	1/4	REB-224M	BTS-220K	Red-Red-Yl. Tone Compensation
47	10 Meg.	1/4	REB-106M	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
48	470KΩ	1/4	REB-474M	BTS-470K	Yl.-Vl.-Yl. AF Plate Load
49	470KΩ	1/4	REB-474M	BTS-470K	Yl.-Vl.-Yl. Phase Inverter Plate Load
50	10 Meg.	1/4	REB-106M	BTS-10 Meg.	Br.-Blk.-Blue Phase Inverter Grid
51	470KΩ	1/4	REB-474M	BTS-470K	Yl.-Vl.-Yl. Output Grid
52	470KΩ	1/4	REB-474M	BTS-470K	Yl.-Vl.-Yl. Output Grid
53	100KΩ	1/4	REB-104M	BTS-100K	Br.-Blk.-Yl. Output Grid
54	390Ω	1/4	REB-391K	BW-2-390	Or.-White-Br. Output Cathode
55	220Ω	1/4	REB-221M	BW-2-220	Red-Red-Br. Parasitic Suppressor
56	47KΩ	1/4	REB-473M	BTS-47K	Yl.-Vl.-Or. Bleeder
57	68KΩ	1/4	REB-683K	BTS-68K	Blue-Gray-Or. I.F. Screen
58	22Ω	1/4	REB-220K	BW-2-22	Red-Red-Blk. Parasitic Suppressor-See Note

Note: Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	OLYMPIC PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
59	117V AC 620V CT @ .73A	5.0V AC @ .095A	6.2V AC @ 2.0A	6.2V AC @ 2.6A	TR-981	P-6013†	T22R05	P-2553

†Add series resistor to reduce plate voltage.

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE	DC RES.	OLYMPIC PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
60	700Ω CT	3.8Ω	540Ω CT	Part of SK-394	A-3823	T22S47*	A-2901

*Use mounting holes provided.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC IMP.	OLYMPIC PART No.	JENSEN PART No.	
61	650Ω	3.6Ω	SK-394		
62	11"	1"	NOT READILY AVAILABLE	REPLACEABLE-USE COMPLETE SPEAKER UNIT.	

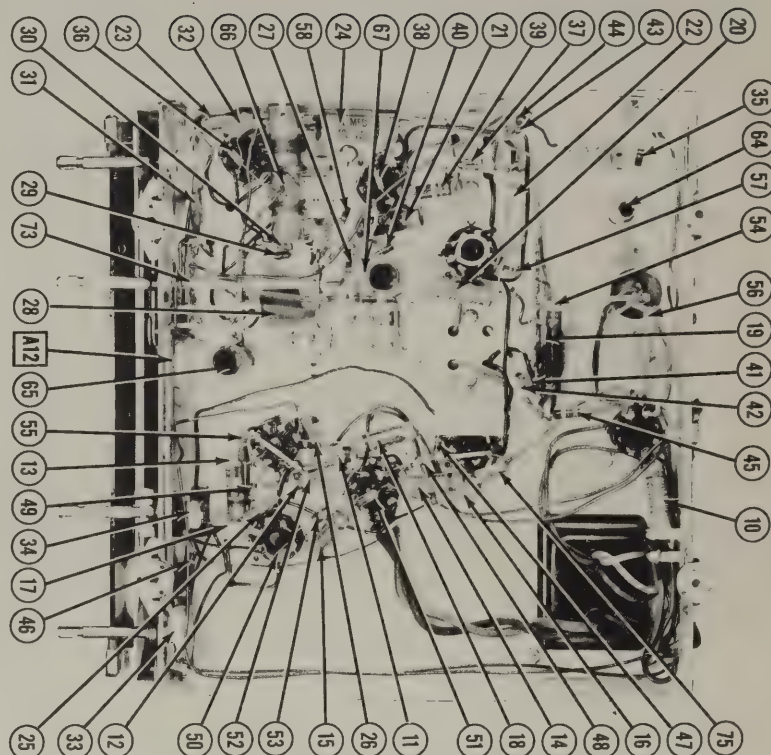
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	OLYMPIC PART No.	MEISSNER PART No.	
63	Loop Ant.	.1Ω	1.2Ω	LP1008		
64	Loop Load.					
65	SW Ant. Coil	.1Ω	.02	CL988		
66A	BC RF Coil	57Ω	3.5Ω	CL989	14-1044	Items 66A & 66B wound on same form.
66B	SW RF Coil	9Ω	.1Ω	CL1000		
67A	BC Osc. Coil		5.5Ω	CL1001		Items 67A & 67B wound on same form.
67B	SW Osc. Coil		.1Ω			
68	Input IF	20Ω	20Ω	TR781	16-6658	
69	Output IF	20Ω	20Ω	TR782	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					OLYMPIC PART No.		
70	Bayonet	6-8	0.15A	Brwn	BU-187		Type 47

CHASSIS—BOTTOM VIEW



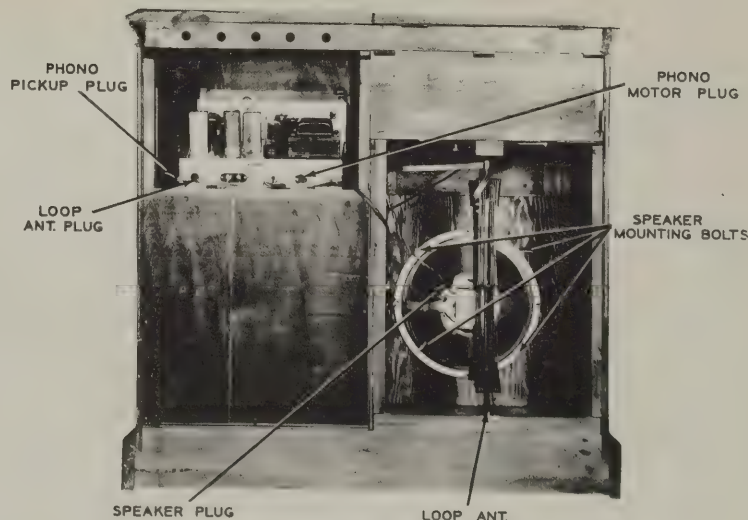
PARTS LIST AND DESCRIPTIONS (Continued)

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA		REMARKS
	OLYMPIC PART No.	ASTATIC PART No.	
72	L70		

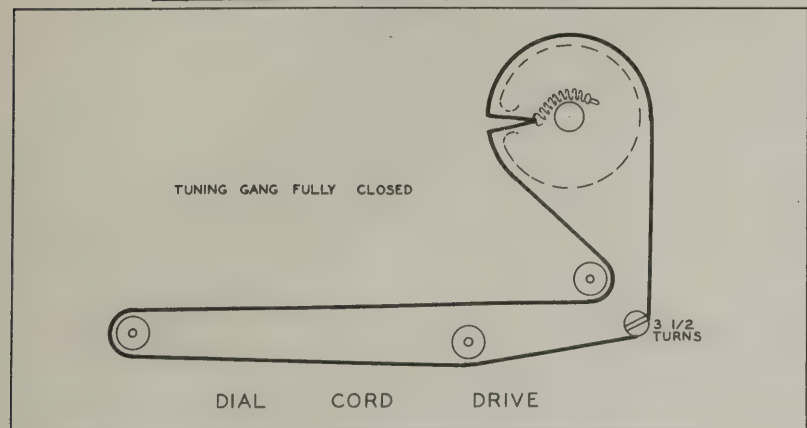
MISCELLANEOUS

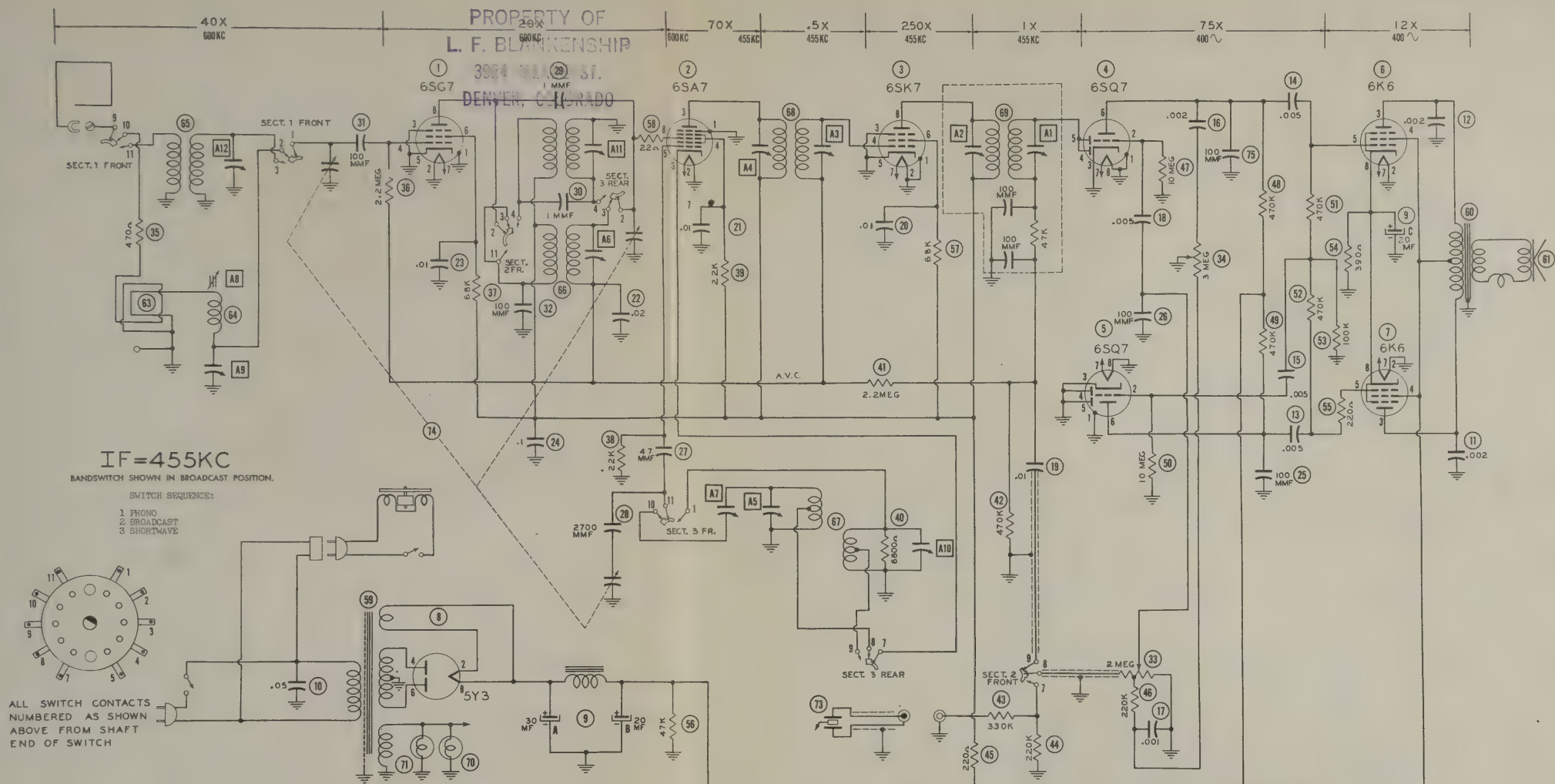
ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
73	Switch	SW885	Band-Phono
74	Tuning Cap.	CV144	
A5	Dual Trimmer	CT389	BC Osc. Adj.
A10	Dual Trimmer	CT389	SW " "
A6	Dual Trimmer	CT389	BC RF Adj.
A11	Dual Trimmer	CT389	SW RF Adj.
A7	Padder Cap.	CT440	BC Osc. Pad.
A9	Trimmer	CT1002	BC Ant. Adj.
A12	Trimmer	CT1002	SW Ant. Adj.
	Dial Scale	DL1003	Glass
	Dial Pointer	PO1011	



DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove loop ant. plug from chassis.
3. Remove short wave antenna lead from chassis.
4. Remove phono-motor plug from chassis.
5. Remove phono-pickup plug from chassis.
6. Remove speaker plug from speaker.
7. Remove four screws holding chassis in cabinet. Remove chassis from cabinet.
8. Remove four Phillips head screws holding loop antenna in cabinet. Remove loop from cabinet.
9. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0V.	0V.	0V.	-.6VDC	0V.	92VDC	6.2VAC	260VDC
2	6SA7	0V.	6.2VAC	260VDC	93VDC	-.8VDC	0V.	0V.	-.5VDC
3	6SK7	0V.	0V.	0V.	-.5VDC	0V.	83VDC	6.2VAC	260VDC
4	6SQ7	0V.	-.5VDC	0V.	-.4VDC	0V.	95VDC	6.2VAC	0V.
5	6SQ7	0V.	-.5VDC	0V.	0V.	0V.	102VDC	6.2VAC	0V.
6	6K6GT	0V.	0V.	260VDC	260VDC	0V.	0V.	6.2VAC	22VDC
7	6K6GT	0V.	0V.	260VDC	260VDC	0V.	0V.	6.2VAC	22VDC
8	5Y3GT	0V.	320VDC	0V.	310VAC	0V.	310VAC	260VDC	320VDC

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

§ TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A PHOTOFAC STANDARD NOTATION SCHEMATIC

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0Ω	0Ω	0Ω	5 Meg.	0Ω	120KΩ	.1Ω	50KΩ
2	6SA7	0Ω	.1Ω	50KΩ	70KΩ	22KΩ	.6Ω	0Ω	3 Meg.
3	6SK7	0Ω	0Ω	0Ω	3 Meg.	0Ω	120KΩ	.1Ω	50KΩ
4	6SQ7	0Ω	10 Meg.	0Ω	520KΩ	520KΩ	.1Ω	0Ω	0Ω
5	6SQ7	0Ω	10 Meg.	0Ω	0Ω	0Ω	520KΩ	.1Ω	0Ω
6	6K6GT	100KΩ	0Ω	50KΩ	50KΩ	500KΩ	2.3 Meg.	.1Ω	390Ω
7	6K6GT	2 Meg.	0Ω	50KΩ	50KΩ	500KΩ	500KΩ	.1Ω	390Ω
8	5Y3GT	INF.	50KΩ	INF.	90Ω	INF.	95Ω	50KΩ	50KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4719-19

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

PHILCO
MODEL 46-1201 (REVISED)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

PHILCO
MODEL 46-1201 (REVISED)



PHILCO
MODEL 46-1201 (REVISED)

PHILCO MODEL 46-1201 (REVISED)

TRADE NAME Philco, Model 46-1201 (Revised) MANUFACTURER Philco Corp., Tioga & "C" Sts., Philadelphia, Pa. TYPE SET AC Operated Combination Phono-Radio Superheterodyne with Loop Antenna TUBES (FIVE) Types, 7A8 Converter, 7B7 IF Amp., 7C6 Det.-AVC-AF, 50A5 or 50B5 Power Output, 50X6 or 50Y6 or 35Y4 Rectifier.						
POWER SUPPLY 105-120 Volts AC TUNING RANGE—BROADCAST 540-1600KC RATING .340 Amp. @ 117 Volts AC						
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
Alignment should be performed with chassis installed in cabinet and loop connected. Record player must be removed to gain access to adjustment points. To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .05 MFD	High side to blue ant. lead after disconnecting same from chassis. Low side to chassis.	455KC	Tuning cap. fully closed	From voice coil connection on Ant. terminal strip to chassis.	A1,A2, A3,A4.	Preset A4 by turning it until tight. Then adjust in order given for maximum output. If isolation transformer is not used reduce dummy ant. to .001 to reduce hum modulation.
2 .05 MFD	"	1600KC	1600KC	"	A5	Adjust for maximum output.
3 .05 MFD	"	1500KC	Tune for maximum output	"	A6	" " " "

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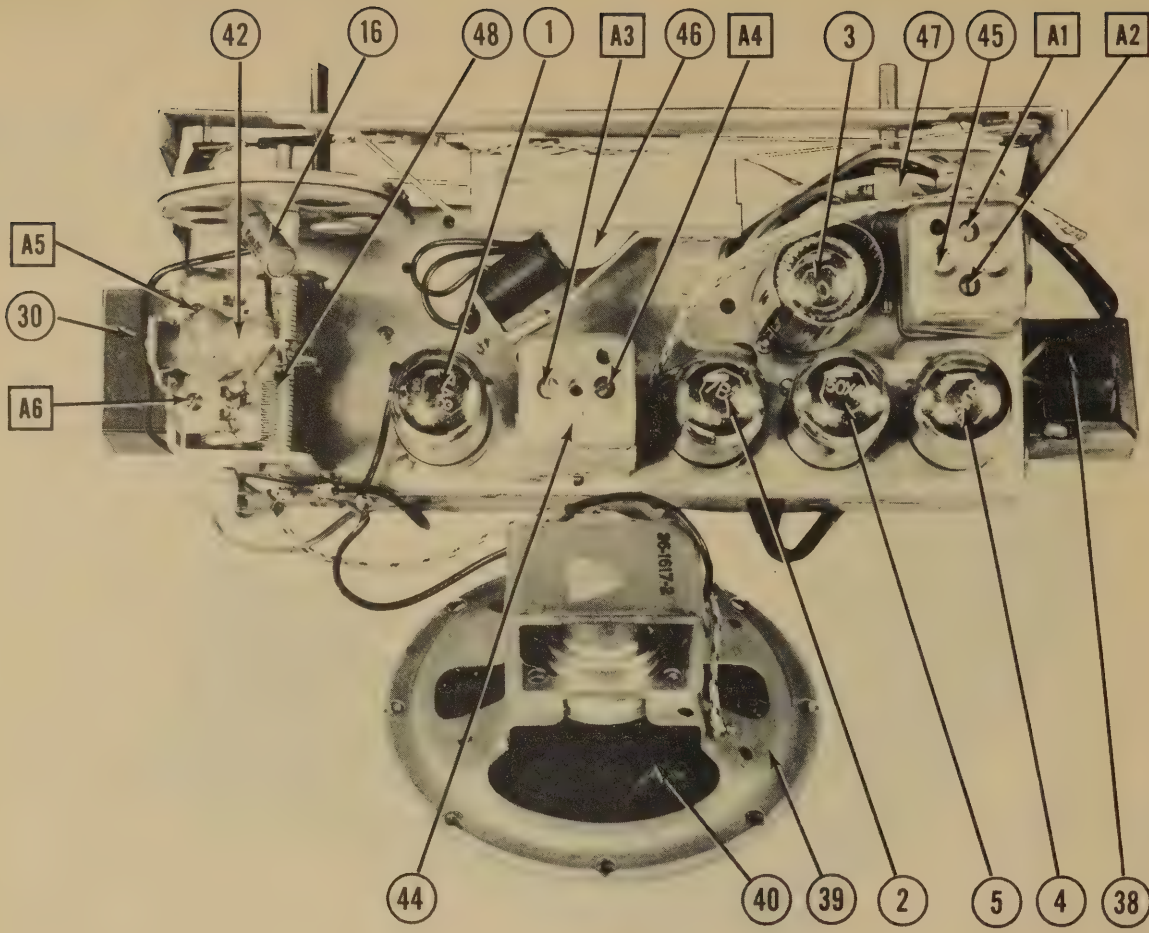
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DATE 12/47 SET #29 FOLDER #4719-21

PHILCO MODEL 46-1201 (Revised)

PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		PHILCO PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6	15	30-2559	TC44	M-16-150	UT-161	Filter **
7	15	30-2559	TC44	M-16-150	UT-161	Filter **
8	40	30-2559	TC44	M-40-350	UT-402	Filter **
9	10	30-2554	TP415	M-8-250	UT-122	Filter **
10	.05		TP426	S-4-05	TC-15	Line Filter
11	.01		TP421	S-4-01	TC-11	Output Plate Bypass
12	.01		TP421	S-4-01	TC-11	Audio Coupling
13	.2		TP429	S-4-2	TC-2	Phono Isolation
14	.05		TP426	S-4-05	TC-15	Screen Bypass
15	.1		TP428	S-4-1	TC-1	AVC Filter
16	.0015		TP404	S-6-001	TC-21	Ext. Ant. Isolation
17	.2		TP429	S-4-2	TC-2	Line Isolation
18	240		M2240	M0.5-325	LFM-325	Output Grid Bypass
19	100		M2235	M0.5-31	LFM-31	RF Bypass Vol. Cont.
20	100		M2235	M0.5-31	LFM-31	RF Coupling!

used in models Code 128 and above. *Items 6, 7 and 8 not used on Code 122. Code 122 used Philco Part #30-2575 (30-25-20 mfd).

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
21	1 Meg.	33-5519				Volume Control & Switch-See Note

Note-Item 21 acts as two 500K Ω controls tapered opposite each other from center tap.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22	120K	66-4122340	BTS-120K	BTS-120K		Br.-Red-Yl. Oscillator Grid
23	1 Meg.	66-5103340	BTS-47K	BTS-47K		Br.-Blk.-Grn. Converter Grid
24	47K	66-3472340	BTS-47K	BTS-47K		Yl.-Vl.-Or. Screen Dropping
25	10 Meg.	66-6103340	BTS-10 Meg.	BTS-10 Meg.		Br.-Blk.-Blue AF Grid
26	2.2 Meg.	66-5223340	BTS-2.2 Meg.	BTS-2.2 Meg.		Red-Red-Grn. AVC Network
27	470K Ω	66-123340	BW-#120	BW-#120		Yl.-Vl.-Yl. AF Plate Load
28	130K	66-2824340	ETA-8200	ETA-8200		Br.-Or.-Br. Output Cathode
29	8200 Ω	33-3435-3	AB-500	AB-500		Gray-Red-Red Filter
30	500 Ω	33-3435-3	AB-500	AB-500		Rectifier Ballast
31	80 Ω	66-4223340	BTS-220K	BTS-220K		Red-Red-Yl. Phono Shunt
32	220K Ω	66-4122340	BTS-150K	BTS-150K		Br.-Grn.-Yl. Phono Shunt
33	150K Ω	66-4122340	BTS-120K	BTS-120K		Br.-Red-Yl. Line Isolation
34	120K Ω	66-1224340	BW-1-220	BW-1-220		Red-Red-Br. Filter - See Note
35	220 Ω	66-2123340	BTA-1200	BTA-1200		Br.-Red-Red
36	1200 Ω	66-2123340	BTS-470K	BTS-470K		Yl.-Vl.-Yl. Output Grid
37	470K Ω					

Note - Used in Code 122 only.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.		PHILCO PART No.	STANCOR PART No.	MERIT PART No.	
38	2400Ω	3.5Ω	300Ω	32-8210	A-3876	T22S45	A-2923

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.		PHILCO PART No.	JENSEN PART No.		
39	PM	3.5Ω		36-1617-2	ST-107		
40	COIL DIA.	VC DIA.			Mod. PS-V		
	4-5/8"	1 1/2"					NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
41	Loop Ant.	32Ω	3.3Ω			
42	Ant. Coil	3Ω	.8Ω			
43	Osc. Coil	25Ω	7Ω			
44	Input IF	21Ω	25Ω			
45	Output IF					

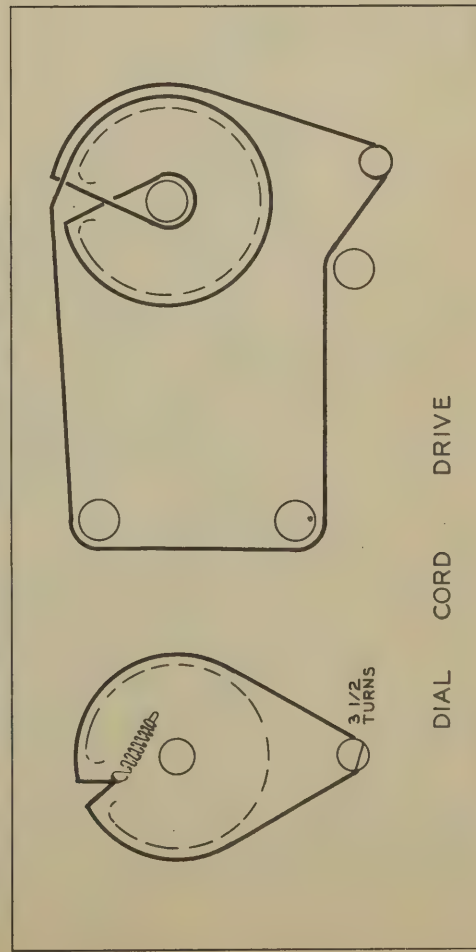
Add 50 MMFD from grid to high side tuning cap.

DIAL LIGHT

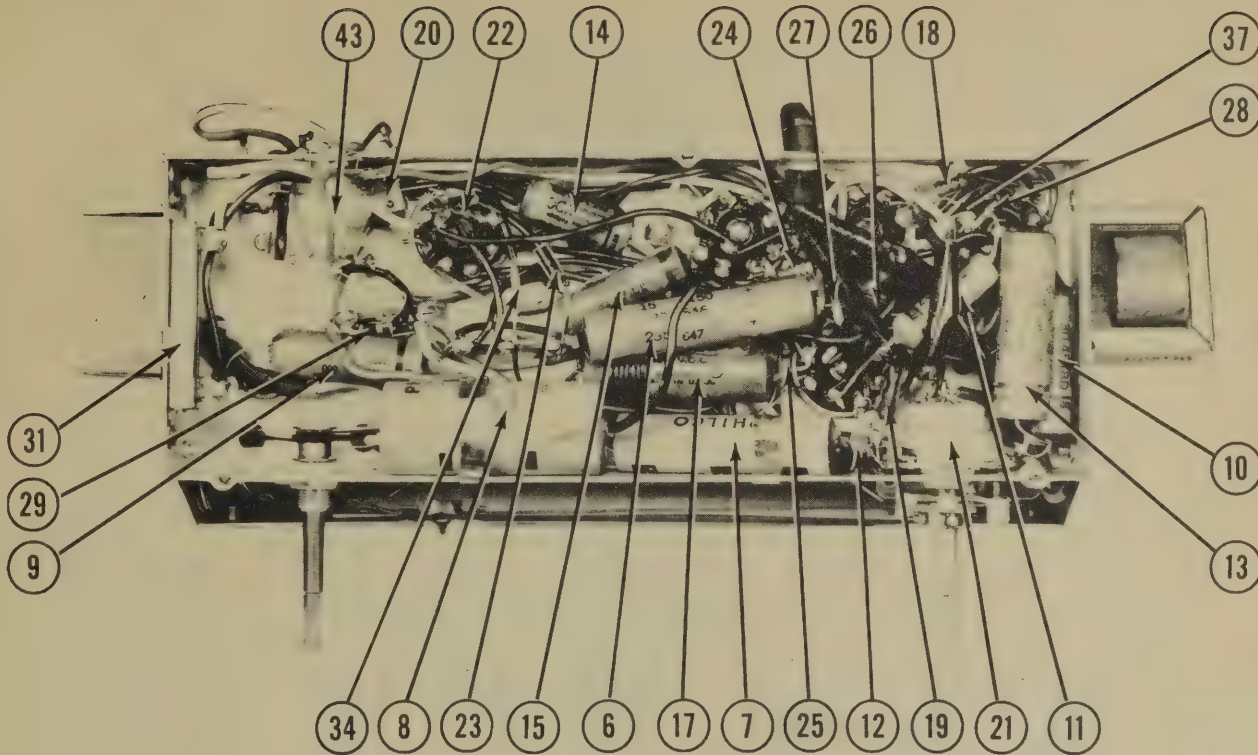
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	PHILCO PART No.	
46A	Screw	120	.15	Brown	34-2068	Type 7M Code 122
B	Bayonet	6-8				Type 47

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
47	Switch	31-2527-1	Radio-Phono (DPDT)
48	2 Gang Var. Cap.		(28-502MMF, 28-175 MMF)



CHASSIS—BOTTOM VIEW





COCC READINGS TAKEN FROM B-
FROM SWITCH ON VOLUME CONTROL AS COMMON NEGATIVE.

VOLTAGE READINGS

AC READINGS TAKEN FROM SWITCH ON VOLUME CONTROL AS COTTON NEGATIVE.

Item	Table	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7AB	6.8VAC	50VDC	90VDC	-8VDC	37VDC	-45VDC	OV.	13VAC
2	7B7	19VAC	90VDC	90VDC	OV.	OV.	-45VDC	OV.	13VAC
3	7C6	OV.	58VDC	-45VDC	OV.	-45VDC	-5VDC	OV.	6.8VAC
4	50A5	67VAC	152VDC	90VDC	OV.	OV.	19VDC	19VAC	OV.
5	50X6	117VAC	105VAC	OV.	OV.	90VDC	105VAC	78VDC	67VAC

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A1	7E	50K Ω	50K Ω	140K Ω	100K Ω	4 Meg.	0 Ω	14 Ω
2	7B7	20 Ω	50K Ω	100K Ω	0 Ω	0	3 Meg.	0 Ω	14 Ω
3	7C6	0 Ω	50K Ω	10 Meg.	0 Ω	3 Meg.	600K Ω	0 Ω	74 Ω
4	50A5	60 Ω	50K Ω	50K Ω	0 Ω	0	540K Ω	130 Ω	20 Ω
5	50Y5	250K Ω	0 Ω	10K Ω	1N Ω	0	220K Ω	60K Ω	60 Ω

RADIO-PHONO SWITCH IN RADIO POSITION.
 § TAKEN WITH VACUUM TUBE VOLTMETER.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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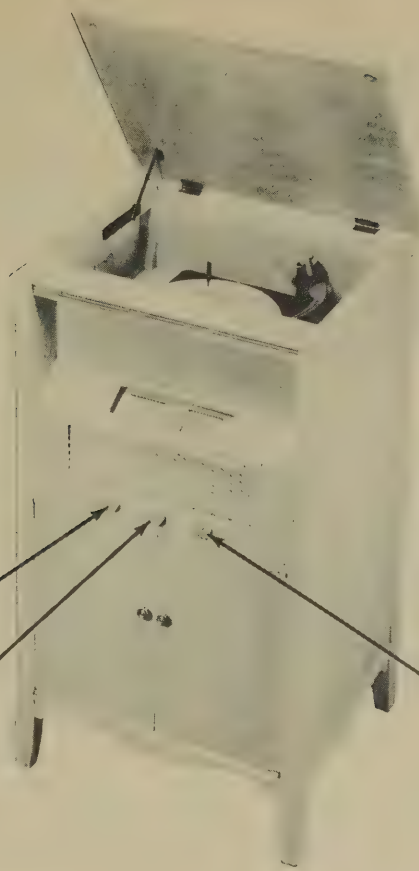
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
STARTER WITH VACUUM TUBE VOLTMETER.
 ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4719-21

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PROPERTY OF
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DENVER, COLORADO



VOLUME CONTROL
ON-OFF SWITCH

TONE CONTROL

TUNING CONTROL

SENTINEL MODEL 293-CT

SENTINEL MODELS
293-CT, IU-293-CT

TRADE NAME Sentinel, Models 293-CT, IU-293-CT MANUFACTURER Sentinel Radio Corp., 2020 Ridge Ave., Evanston, Ill. TYPE SET AC Operated Combination Phono-Radio Superheterodyne Receiver with Loop Antenna TUBES (SIX) Types, 12SK7 RF Amp., 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.						
POWER SUPPLY 110-120 Volts AC TUNING RANGE—BROADCAST 530-1650KC RATING .240 Amps. @ 117 Volts AC						
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT Use isolation transformer if available. If not connect a .1 MFD capacitor in series with Low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .2 MFD.	High side to Pin 8 (grid) 12SA7. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2 200MMFD	High side to ext. ant. lead. Low side to ext. ground lead.	"	Tuning cap. fully closed	"	A5	Adjust for minimum output.
3 200MMFD	"	1650KC	Tuning cap. fully open.	"	A6	Adjust for maximum output. Trimmer opposite A6 is a factory adjustment and need not be disturbed unless calibration is impossible with A6 alone.
4 200MMFD	"	1400KC	Tune for maximum output.	"	A7	Adjust for maximum output.

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DATE 12/47 SET #29 FOLDER #4719-22

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

SENTINEL MODELS
293-CT, IU-293-CT

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		SENTINEL PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	128K7	128K7	8N	
2	Converter	128A7	128A7	8R	
3	IF Amp.	128K7	128K7	8N	
4	Det.-AVC-AF	128Q7	128Q7	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION AND INSTALLATION NOTES
		SENTINEL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	50 CAP.	25E6	2N521	DSB-2x50-150	TA-505	FRSA150-50-50	Filter - Yellow
7B	150	23E416	TP426	S-4-05	TC-15	484-05	Line Filter
8	.05	23E411	TP421	S-4-01	TC-11	484-01	Output Plate Bypass
9	.01	23E408	TP408	S-6-005	TC-25	684-005	Audio Coupling
10	.005	23E405	TP405	S-6-002	TC-22	684-002	Tone Compensation
11	.003	23E408	TP408	S-6-005	TC-25	684-005	Audio Coupling
12	.005	23E416	TP426	S-4-05	TC-15	484-05	Phone Isolation
13	.01	23E211	TP421	S-4-01	TC-11	484-01	RF Screen Bypass
14	.05	23E216	TP426	S-4-05	TC-15	484-05	AVC Filter
15	.2	23E221	TP429	S-4-2	TC-2	484-2	Line Isolation-See Note
16	200	23E235	MC235	MO-5-21	1FN-31	1468-0001	Tone Compensation
17	500	23E235	MC235	MO-5-21	1FN-31	1468-0001	Tone Compensation
18	250	23E240	MC240	MO-5-225	1FN-325	1468-00025	Diode RF Filter
19	500	23E240	MC240	MO-5-225	1FN-325	1468-00025	Osc. Grid Cap.
20	500	23E240	MC240	MO-5-225	1FN-325	1468-00025	RF Coupling
21	100	23E235	MC235	MO-5-31	1FN-31	1468-0001	AF Plate Bypass

Note-Used only in Underwriters approved models.

CONTROLS

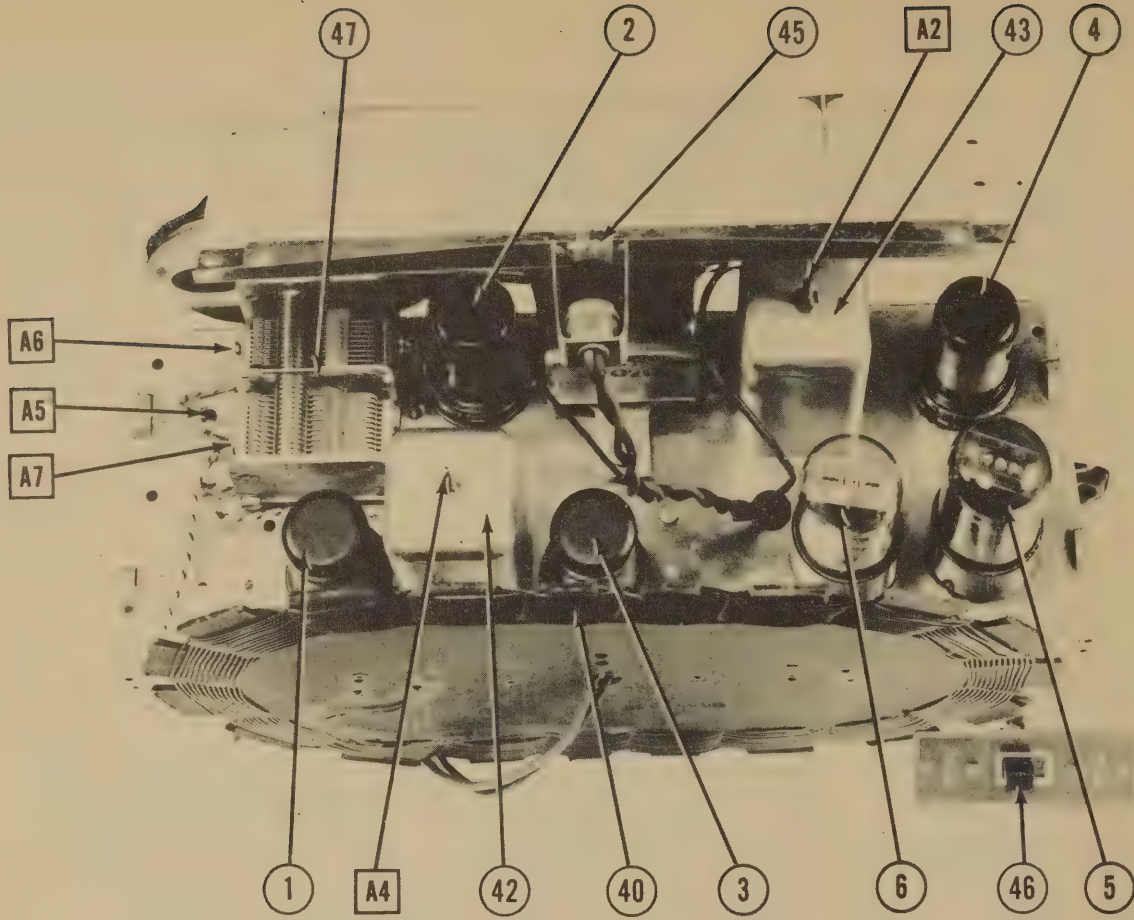
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SENTINEL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
22A	500K Ω	23E24	MK401 $\frac{1}{2}$	D13-133 $\frac{1}{2}$	AM-60-Z $\frac{1}{2}$	Volume Control (late production) Attach to 22A per instructions
B	Shaft	Not Req.	M26	E	SW-A	
22A	500K Ω	23E7	MK401 $\frac{1}{2}$	D13-133 $\frac{1}{2}$	AM-60-Z $\frac{1}{2}$	Volume Control (early production) Attach to 22A per instructions
B	Shaft	Not Req.	M26	E	SW-A	
23A	500K Ω	23E8	MK401	D13-133	AM-60-Z	Tone Control Attach to 23A per instructions
B	Shaft	Not Req.	Not Req.	E	KSS-3	

*Wrap scotch tape around shaft adjacent to lock ring for dial cord surface.
*Install a 47K Ω resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Controls viewed from shaft side, terminals down.)

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		SENTINEL PART No.	IRC PART No.	Red-Red-Yl. Line Isolation-See Note	
24	220K Ω	27E224	BTS-220K	Yl.-Vl.-Or. RF Screen Bypassing	
25	47K Ω	27E473	BTS-47K	Gray-Red-Red RF Plate Load	
26	8200 Ω	27E822	BTS-8200	Red-Red-Yl. Converter Grid	
27	220K Ω	27E224	BTS-220K	Red-Red-Yl. Oscillator Grid	
28	22K Ω	27E223	BTS-22K	Or.-Or.-Orn. AVC Network	
29	3.3 Meg.	27E335	BTS-3.3 Meg.	Yl.-Vl.-Yl. AF Grid	
30	3.3 Meg.	27E335	BTS-3.3 Meg.	Yl.-Vl.-Yl. AF Plate Load	
31	470K Ω	23E474	BTS-470K	Br.-Orn.-Br. Output Cathode	
32	150K Ω	27E151	BW-150	Br.-Blk.-Br. Pilot Light Shunt	
33	1000 Ω	27E102-3	BW-1000	Yl.-Vl.-Blk. Rectifier Ballast	
34	100K Ω	27E101-2	BW-100		
35	100K Ω	27E101-2	BW-100		
36	47K Ω	27E470-2	BW-47		

Note-Used only in Underwriters approved models.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.		SENTINEL PART No.	STANCOR PART No.	MERIT PART No.	
37	4565Ω 3.6Ω	248Ω .93Ω		22E3	A-3876† T22S46†	A-2900†	†Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.		SENTINEL PART No.	JENSEN PART No.		
38	FM	3.5Ω		1E1			
39	CONE DIA. 4"x6"	VC DIA. 1/2"					NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT

R F COILS

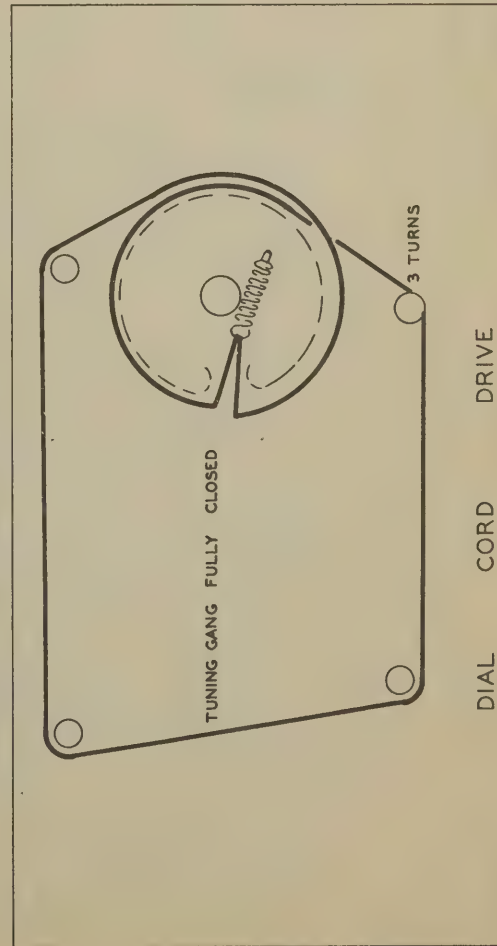
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	SENTINEL PART No.	MEISSNER PART No.
40	Loop Ant.	.1Ω	1Ω	20E67	
41	Osc. Coil	.5Ω	8Ω	20E64	14-104C
42	Input IF	11Ω	11Ω	20E21	16-5740
43	Output IF	11Ω	10Ω	20E22	16-5742
44	Wave Trap			2E19	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	SENTINEL PART No.	
45	Bayonet	6-8	0.15	Brown	40E1	Type 47

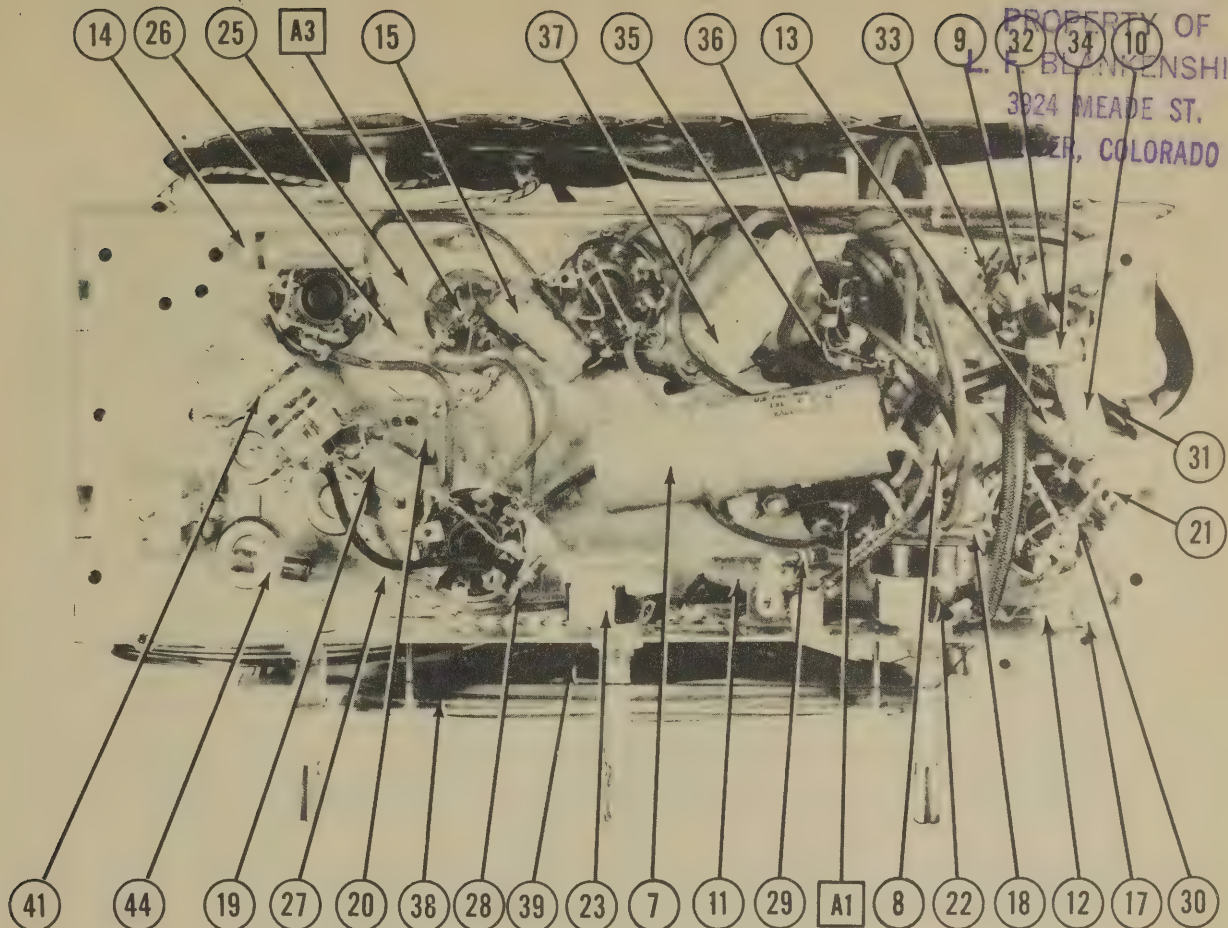
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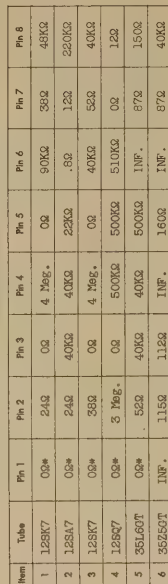
ITEM No.	PART NAME	SENTINEL PART No.	NOTES
46	Switch	20E203	Radio-Phono (D.P.D.T.)
47	2 Gang Var. Cap.	24E6	(30-463 MMF, 17-194 MMF)
A5	Trimmer	24E3	IF Wave Trap Adj.
	Dial Scale	36E16	Glass
	Dial Pointer	35E13	



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



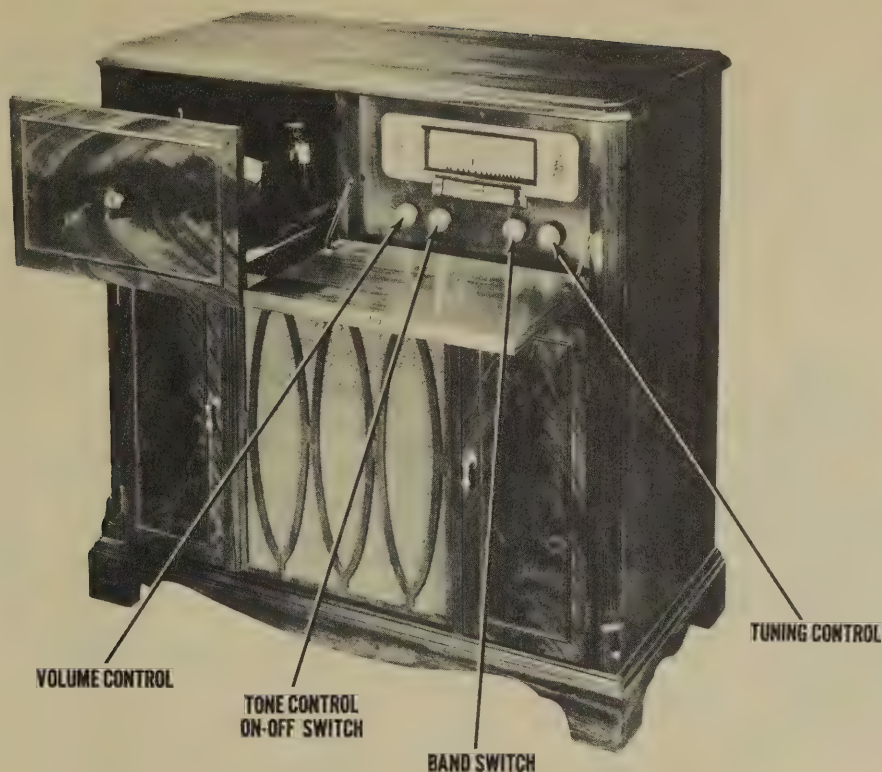


*220K2 on Underwriters approved models.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4719-22

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SILVERTONE MODEL 6111A (Ch. 101.662-5F)

TRADE NAME Silvertone, Models 6106A (Ch. 101.662-4E), 6111A (Ch. 101.662-5F)
 SUPPLIER Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.
 TYPE SET AC Operated Combination Phono-Radio 2 Band Superheterodyne with Loop Antenna
 TUBES (EIGHT) Types, 7E6 Osc.-Bias Control, 7H7 Mixer, 6SK7GT IF Amp., 6SQ7GT Det.-AVC-AF, 6SQ7GT Phase Inv., (2) 6K6GT Power Output, 5Y3GT Rectifier.

POWER SUPPLY 110-120 Volts AC

RATING 630 Amp. @ 117 Volts AC

TUNING RANGE—BROADCAST 540-1700KC

SHORT WAVE 6-18MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	high side to Pin 6 (grid) 7H7. Low side to chassis.	455KC	BC (counter-clock-wise)	Tuning cap. fully closed	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
2 200MFD	High side to ext. ant. terminal. Low side to chassis.	1750KC	"	Tuning cap. fully open.	"	A5	" " " "
3 "	"	1410KC	"	Tune for maximum output.	"	A6,A7	" " " "
4 "	"	600KC	"	"	"	A8	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 & 4 until no further improvement can be made.
5 400Ω carbon res.	"	18.3MC	SW (clock-wise)	Tuning cap. fully open.	"	A9	Adjust for maximum output.
6 "	"	15MC	"	Tune for maximum output.	"	A10	Rock tuning cap. and adjust for maximum output.

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DATE 12/47

SET #29

FOLDER #4719-23

SILVERTONE MODELS 6106A
(Ch. 101.662-4E), 6111A (Ch. 101.662-5F)SILVERTONE MODELS 6106A
(Ch. 101.662-4E), 6111A (Ch. 101.662-5F)

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SILVERTONE PART No.	STANDARD REPLACEMENT		
1	Osc.-Bias Control	7E6	7E5	8W	
2	Mixer	7H7	7H7	8Y	
3	IF Amp.	6SK7GT	6SK7GT	8N	
4	Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
5	Phase Inv.	6SQ7GT	6SQ7GT	8Q	
6	Power Output	6K6GT	6K6GT	7S	
7	Power Output	6K6GT	6K6GT	7S	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

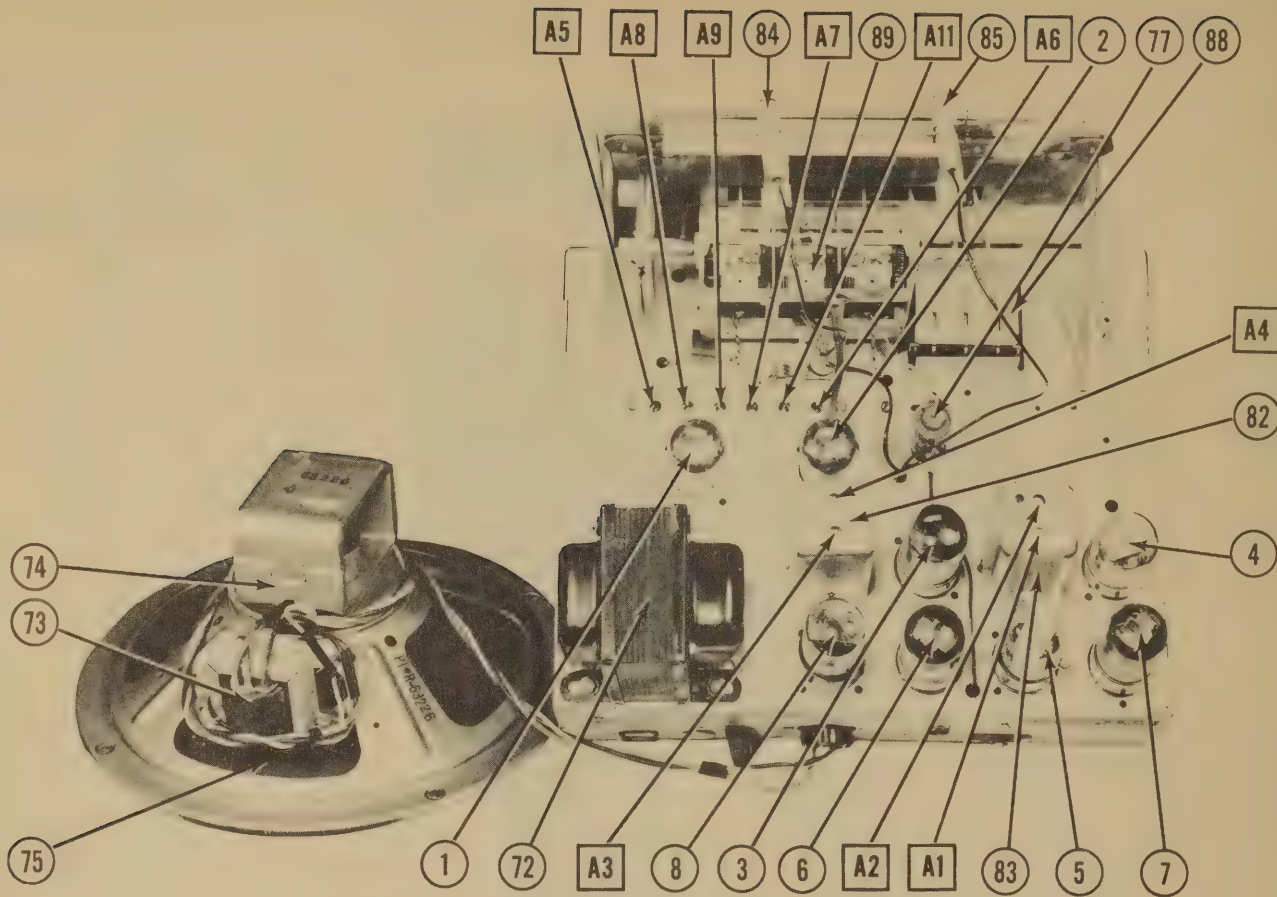
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES		
	CAP	VOILT	SILVERTONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.		AEROVOX PART No.	CORNELL-DUBILIER PART No.
9	40	450	R61272	TC78	M-40-450	UT-40	PRS450-40	BR4045	Filter
10A	30	375	R45828	TC77	M-30-450	UT-30	PRS450-30	BR3045	" - Yellow
11	.002	800		TP405	S-6-002	TC-22	694-002	DT6D2	" - Red
12	.002	800		TP405	S-6-002	TC-22	694-002	DT6D2	Output Plate Bypass
13	.1	400		TP428	S-4-1	TC-11	484-1	DT4F1	Phase Inv. Plate Byp
14	.01	800		TP410	S-6-01	TC-11	694-01	DT6S1	Audio Coupling
15	.005	800		TP408	S-6-005	TC-25	694-005	DT6D5	Tone Comp.
16	.01	400		TP421	S-4-01	TC-11	434-01	DT4S1	AF Plate Decoup.
17	.1	400		TP428	S-4-1	TC-11	484-1	DT4P1	RF Bypass Pwr. Suppl
18	.1	400		TP428	S-4-1	TC-11	484-1	DT4P1	Tone Comp.
19	.005	800		TP408	S-6-005	TC-25	694-005	DT6D5	Audio Coupling
20	.01	400		TP421	S-4-01	TC-11	434-01	DT4S1	Tone Comp.
21	.002	600		TP405	S-6-002	TC-22	694-002	DT6D2	AF Plate Decoup.
22	.008	400		TP450	S-6-003	TC-23	484-0075	DT6D3	Tone Comp.
23	.003	400		TP406	S-4-1	TC-11	694-003	DT6D3	IF Screen Decoup.
24	.1	400		TP428	S-4-1	TC-11	484-1	DT4P1	AVC Filter
25	.1	200		TP418	S-6-1	TC-11	694-1	DT6P1	IF Cathode Bypass
26	.1	200		TP428	S-4-1	TC-11	434-1	DT4P1	Mixer Screen Bypass
27	.1	400		TP428	S-4-1	TC-11	494-1	DT4F1	Mixer Plate Decoupli
28	.1	400		TP428	S-4-1	TC-11	4-4-1	DT4S1	Osc. Plate Decoupling
29	.01	400		TP421	S-4-01	TC-11	484-01	DT4S1	AVC Filter
30	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	AF Coupling
31	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	AF Coupling
32	100	500		MC235	M0.5-31	1FM-31	1468-0001	SWST1	AVC Coupling
33	100	500		MC235	M0.5-31	1FM-31	1468-0001	SWST1	Tone Comp.
34	500	500		MC245	M0.5-35	1FM-35	1468-0005	SWST5	Osc. Grid
35	50	500		MC235	M0.5-31	1FM-31	1468-0001	SWST1	Fixed Pad
36	50	500		MC235	M0.5-31	1FM-31	1468-0001	SWST1	Filter
37	4000	500		MC463	M4.5-24	1FM-24	1467-004	LDSD4	Filter
38	100	500		MC235	M0.5-31	1FM-31	1468-0001	SWST1	Filter

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
39A	2 Meg. B Shaft	R47240	DT4296	D13-139XX		Volume Control
40A	1 Meg. B Shaft	R47235	UN159	D14-137		Attach to 39A per instructions
41	Switch		P26	41		Tone Control
						Attach to 40A per instructions

CHASSIS—TOP VIEW



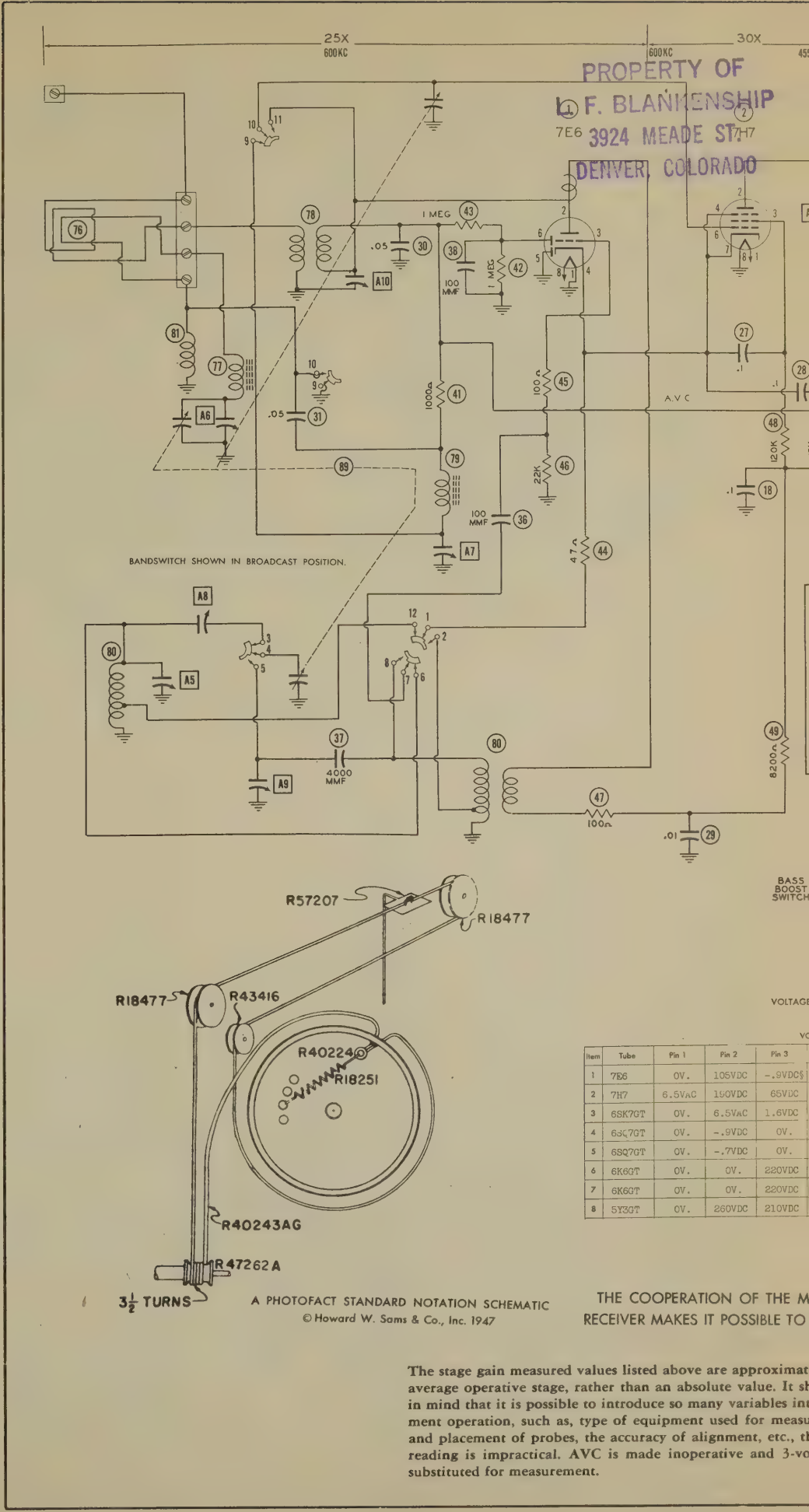
PARTS LIST AND DESCRIPTIONS (Continued)

CHASSIS—BOTTOM VIEW

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SILVERTONE PART No.	IRC PART No.	
41	1000Ω	1/3		BTS-1000	Br.-Blk.-Red Mixer Grid
42	1 MΩ	1/3		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
43	1 MΩ	1/3		BTS-1 Meg.	Br.-Blk.-Grn.
44	47Ω	1/3		BM-4-47	Yl.-Vi.-Blk. Oscillator Cathode
45	100Ω	1/3		BM-4-100	Br.-Blk.-Br. Parasitic Suppressor
46	22KΩ	1/3		BTS-22K	Red-Red-Or. Oscillator Grid

- 28
- 9
- 51
- 48
- 30
- 49
- 10
- 43
- 38
- 46
- 45
- 36
- 42
- 44
- 27
- 47
- 80
- 3



PROPERTY OF
F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

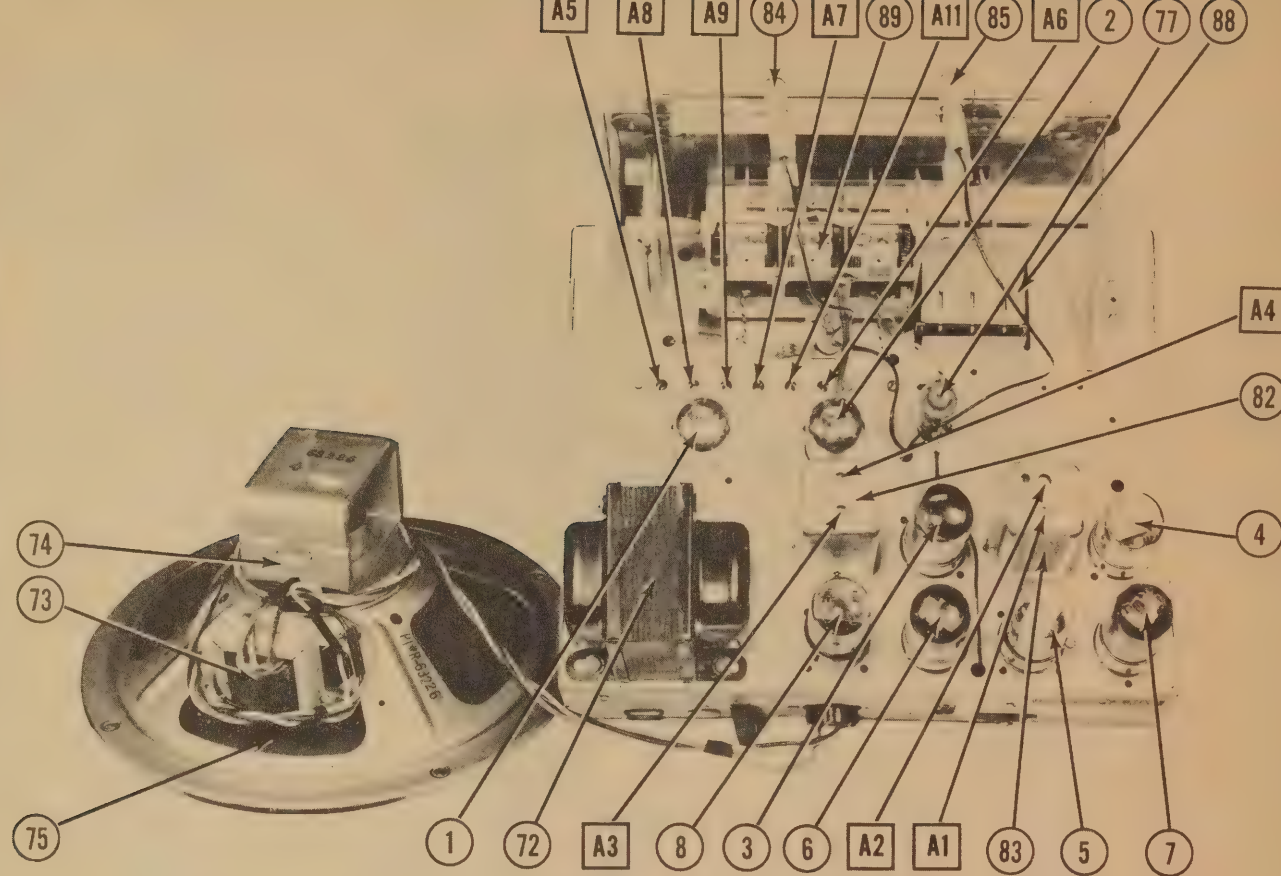
Item	Tube	Pin 1	Pin 2	Pin 3
1	7E6	OV.	105VDC	-.9VDC
2	7H7	6.5VAC	100VDC	65VDC
3	6SK7GT	OV.	6.5VAC	1.6VDC
4	6SK7GT	OV.	-.9VDC	OV.
5	6SQ7GT	OV.	-.7VDC	OV.
6	6K6GT	OV.	OV.	220VDC
7	6K6GT	OV.	OV.	220VDC
8	5Y3GT	OV.	260VDC	210VDC

The stage gain measured values listed above are approximate average operative stage, rather than an absolute value. It should be in mind that it is possible to introduce so many variables into the operation, such as, type of equipment used for measurement, and placement of probes, the accuracy of alignment, etc., that reading is impractical. AVC is made inoperative and 3-volts substituted for measurement.

THE COOPERATION OF THE MANUFACTURER OF THE RECEIVER MAKES IT POSSIBLE TO

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		SILVERTONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
1	40	R61272	TC78	M-40-450	UT-40	BR4045
10A	30	R45829	TC77	M-30-450	UT-30	BR3045
11	30		TP405	S-6-002	TC-22	684-002
12	.002		TP405	S-6-002	TC-22	684-002
13	.01		TP428	S-4-1	TC-11	684-001
14	.01		TP410	S-6-01	TC-11	684-001
15	.005		TP408	S-6-005	TC-25	684-005
16	.01		TP421	S-4-01	TC-11	684-001
17	.01		TP428	S-4-1	TC-11	684-001
18	.01		TP428	S-4-1	TC-11	684-001
19	.005		TP408	S-6-005	TC-25	684-005
20	.01		TP421	S-4-01	TC-11	684-001
21	.002		TP405	S-6-002	TC-22	684-002
22	.008		TP450	S-6-003	TC-23	684-003
23	.003		TP406	S-4-1	TC-11	684-001
24	.01		TP428	S-4-1	TC-11	684-001
25	.01		TP418	S-4-1	TC-11	684-001
26	.01		TP428	S-4-1	TC-11	684-001
27	.01		TP428	S-4-1	TC-11	684-001
28	.01		TP428	S-4-1	TC-11	684-001
29	.01		TP421	S-4-01	TC-11	684-001
30	.05		TP426	S-4-05	TC-15	484-05
31	.05		TP426	S-4-05	TC-15	484-05
32	100		MC235	MO-5-31	1FM-31	1488-0001
33	100		MC235	MO-5-31	1FM-31	1488-0001
34	500		MC225	MO-5-45	1FM-45	1488-0005
35	500		MC225	MO-5-45	1FM-45	1488-0005
36	500		MC235	MO-5-31	1FM-31	1488-0001
37	4000		MC463	MO-5-24	1FM-24	1487-004
38	100		MC235	MO-5-31	1FM-31	1488-0001

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
35A	2 Reg. B Shaft	R47240	DTM296	D13-139XX		Volume Control Attach to 39A per instructions
40A	1 Reg. B Shaft	R47235	UFI159	D14-137		Tone Control Attach to 40A per instructions
41	Not Req. C Switch					

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SILVERTONE PART No.	IRC PART No.	
41	100Ω	1/3	BTS-1000	Br.-Blk.-Red Mixer Grid	
42	1 Meg.	1/3	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network	
43	1 Meg.	1/3	BTS-1 Meg.	Br.-Blk.-Grn. "	
44	47Ω	1/3	BW-2-47	Yl.-Vl.-Blk. Oscillator Cathode	
45	100Ω	1/3	BW-2-100	Br.-Blk.-Br. Parasitic Suppressor	
46	22KΩ	1/3	BTS-22K	Red-Red-Or. Oscillator Grid	
47	100Ω	1/3	BW-2-100	Br.-Blk.-Br. Parasitic Suppressor	
48	120KΩ	1/3	BTS-120K	Br.-Red-Yl. Screen Dropping	
49	8200Ω	1	ATA-8200	Gray-Red-Red Plate Decoupling	
50	10KΩ	1/3	BTS-10K	Br.-Blk.-Or. Mixer Plate Decoupling	
51	270Ω	1/3	BW-2-270	Red-Vl.-Br. IF Cathode	
52	27KΩ	1/3	BTS-27K	Red-Vl.-Or. Tone Compensation	
53	220KΩ	1/3	BTS-220K	Red-Red-Yl.	
54	56KΩ	1/3	BTS-56K	Grn.-Blue-Or. "	
55	1 Meg.	1/3	BTS-1 Meg.	Br.-Blk.-Grn. "	
56	560KΩ	1/3	BTS-560K	Grn.-Blue-Yl. Series Phono	
57	15 Meg.	1/3	BTS-15 Meg.	Br.-Grn.-Blue AF Grid	
58	1 Meg.	1/3	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network	
59	82KΩ	1/3	BTS-82K	Gray-Red-Or. IF Screen Dropping	
60	1 Meg.	1/3	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Decoupling	
61	100KΩ	1/3	BTS-100K	Br.-Blk.-Yl. AF Plate Load	
62	33KΩ	1/3	BTS-33K	Or.-Or.-Or.- AF Plate Decoupling	
63	3300Ω	1	ATA-3300	Or.-Or.-Red Decoupling	
64	180KΩ	1/3	BTS-180K	Br.-Gray-Yl. Phase Inverter Plate	
65	33KΩ	1/3	BTS-33K	Or.-Or.-Or. Phase Inverter Plate Decoupling	
66	47KΩ	1/3	BTS-47K	Yl.-Vl.-Or. Phase Inverter Grid	
67	270KΩ	1/3	BTS-270K	Red-Vl.-Yl. Output Grid	
68	330KΩ	1/3	BTS-330K	Or.-Or.-Yl. Output Grid	
69	100Ω	2	BW-1-100	Br.-Blk.-Br. Output Cathode	
70	820Ω	1	BT-2-820	Gray-Red-Br. Filter	
71	300Ω	5	AB-300	Or.-Blk.-br. Surge Limiter	

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	SEC. 3	SILVERTONE PART No.	STANCOR PART No.	THORDARSON PART No.
72	117V AC @ .63A	630V CT @ .08A	5.3V AC @ 1.8A	6.5V AC @ 2.7A	R45953	P-6312#	T22R04

#Mount vertically with universal mounting bracket. #Drill new mounting holes.

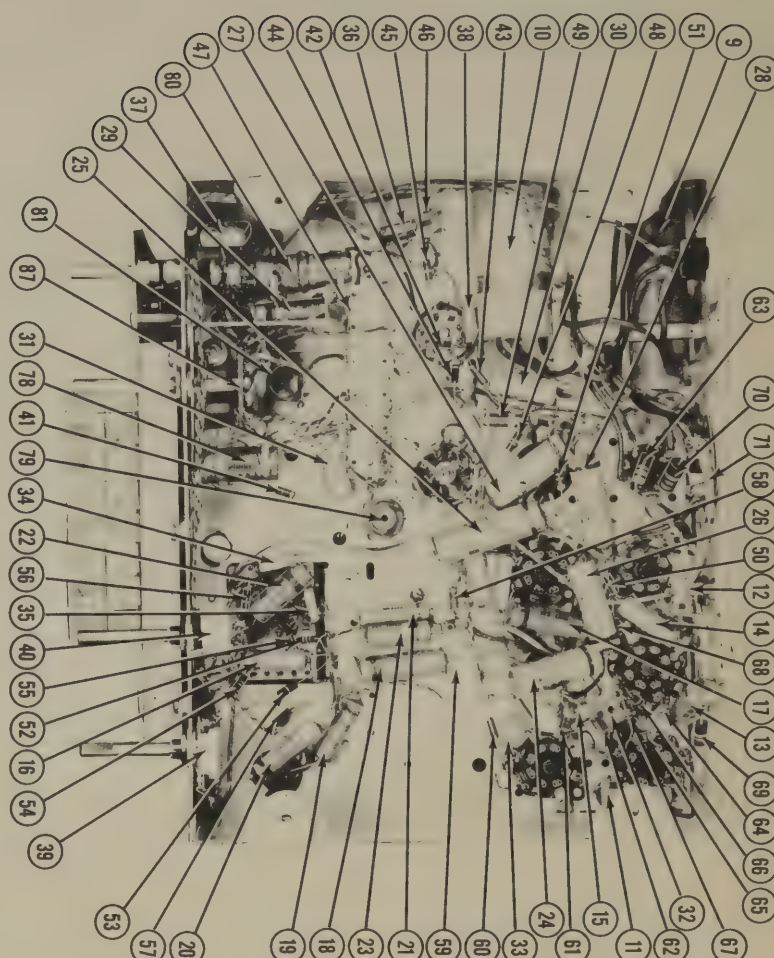
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
73	13600 Ω CT	3.5Ω CT	600Ω CT	.35Ω	R45837	A-2823	T22S48†	A-2904	†Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC.	SILVERTONE PART No.	JENSEN PART No.	
74	FIELD PH	VC IMP. 3-5Ω	R61260	ST-120*	*Replace output transformer to match 6-8Ω voice coil.
75	CONE DIA. 9-3/4"	VC DIA. 1"	R61036	Mod. F10-S	

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		REMARKS
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	
76A	Loop Ant. Coil	.1Ω	.3Ω	R57196		Used in Model 6111A
77	Loop Load Coil			R57216		Used in Model 6106A
78	SW Ant. Coil	.5Ω	2.5Ω	R47193		
79	eC Mixer Coil		.1Ω	R47195	14-1044	
80A	eC Osc. Coil		2.2Ω	R47194		Items 80A & 80B are wound on same form.
81	SW Osc. Coil	.5Ω	.1Ω	R47192		
82	Coupling Coil		.1Ω	R57187		
83	Input IF	14Ω	14Ω	R45305	16-6658	
84	Output IF	16Ω		R45306	16-6670	Add 150kΩ from low side sec. to ground

DIAL LIGHT

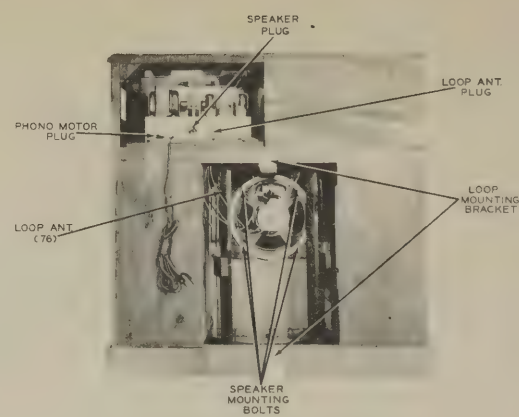
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SILVERTONE PART No.		
84	Bayonet	6-8	0.25A	Blue			Type 44

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA		REMARKS
	SILVERTONE PART No.	ASTATIC PART No.	
86		L-70-S	

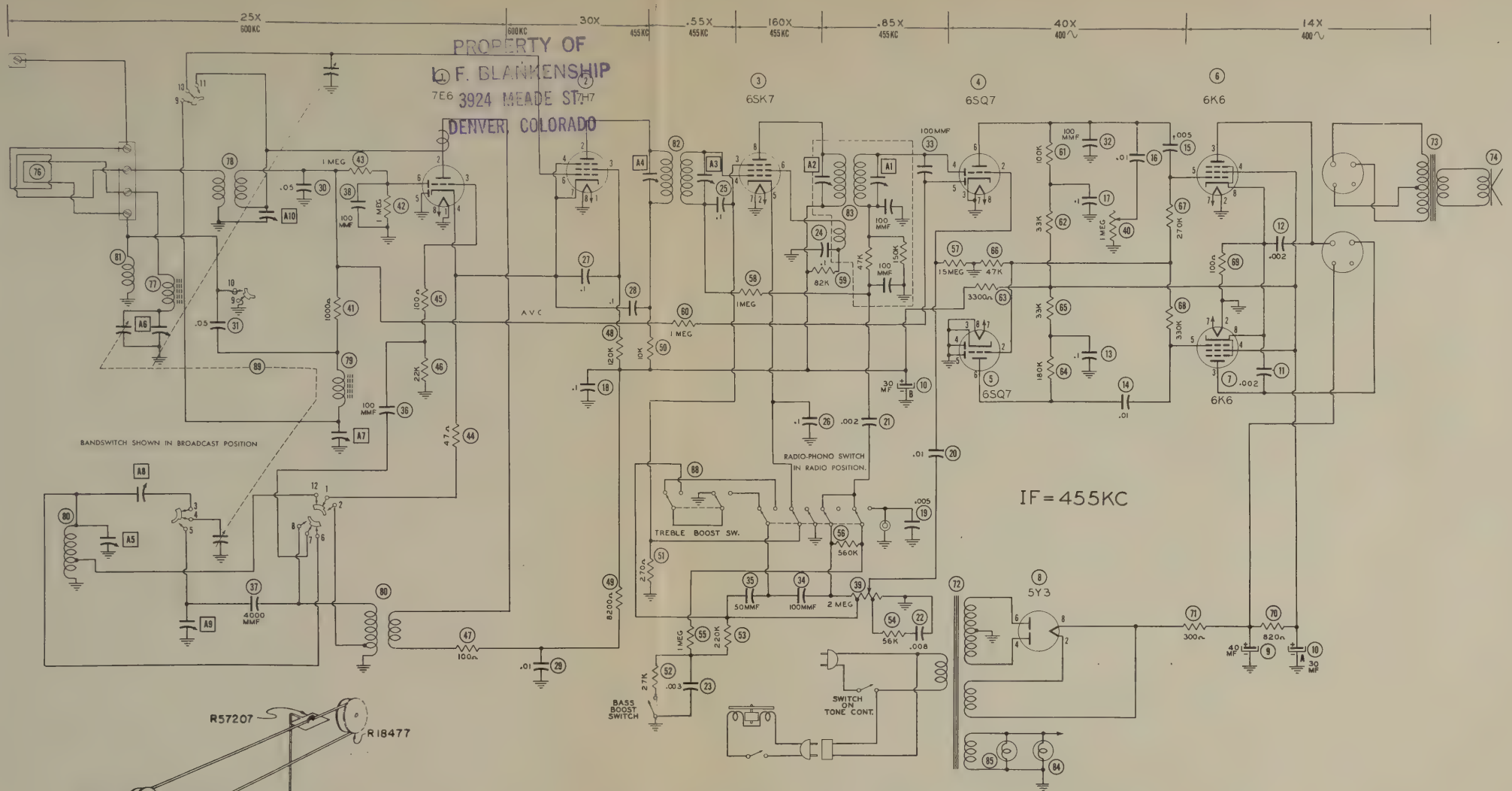
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
87	Band Switch	R47191	
88	Switch	R45944	
89	3 Gang Var. Cap.		Tone-Phono-Radio (11-478 MTF, 11-478 MTF)
A5			eC Osc. Adj.
A6			eC RF Adj.
A7	Trimmer Strip	R47199	eC Ant. Adj.
A8			eC Osc. Padder
A9			SW Osc. Adj.
A10	Escutcheon Dial Pointer	R57231	SW Ant. Adj.
		R57207	Dial with Glass



DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove phono-motor plug from chassis.
3. Remove phono-pickup plug from chassis.
4. Remove loop leads from chassis.
5. Remove speaker plug from chassis.
6. Remove two nails from rear of chassis.
7. Remove four screws holding chassis in cabinet. Remove chassis from cabinet.
8. Remove loop antenna from cabinet.
9. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.



PROPERTY OF
F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

IF = 455KC

VOLTAGE AND RESISTANCE READINGS TAKEN WITH BANDSWITCH IN BROADCAST POSITION AND RADIO-PHONO SWITCH IN RADIO POSITION.

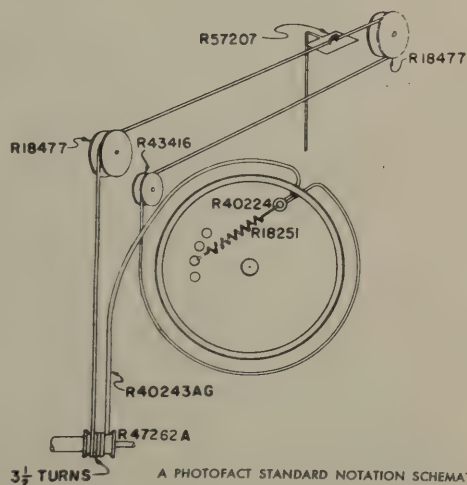
VOLTAGE READINGS								
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	7E6	OV.	105VDC	-.9VDC	.4VDC	OV.	-.9VDC	.4VDC
2	7H7	6.5VAC	100VDC	65VDC	.4VDC	OV.	-.9VDC	.4VDC
3	6SK7GT	OV.	6.5VAC	1.6VDC	-.1VDC	1.6VDC	62VDC	OV.
4	6SQ7GT	OV.	-.9VDC	OV.	-.7VDC	-.4VDC	132VDC	OV.
5	6SQ7GT	OV.	-.7VDC	OV.	OV.	67VDC	6.5VAC	OV.
6	6K6GT	OV.	OV.	220VDC	220VDC	-.2VDC	190VDC	6.5VAC
7	6K6GT	OV.	OV.	220VDC	220VDC	-.2VDC	150VDC	6.5VAC
8	5Y3GT	OV.	260VDC	210VDC	315VAC	OV.	315VAC	160VDC

RESISTANCE READINGS								
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	7E6	OV.	70KΩ	22KΩ	44Ω	OV.	900KΩ	44Ω
2	7H7	.1Ω	70KΩ	100KΩ	44Ω	OV.	2.7MΩ	44Ω
3	6SK7GT	OV.	.1Ω	270KΩ	1.2 MΩ	270Ω	140KΩ	OV.
4	6SQ7GT	OV.	15 MΩ	OV.	3 MΩ	150KΩ	195KΩ	.1Ω
5	6SQ7GT	OV.	45KΩ	OV.	OV.	275KΩ	.1Ω	OV.
6	6K6GT	OV.	OV.	60KΩ	60KΩ	320KΩ	60KΩ	.1Ω
7	6K6GT	OV.	OV.	60KΩ	60KΩ	440KΩ	60KΩ	.1Ω
8	5Y3GT	OV.	60KΩ	60KΩ	150Ω	INF.	160Ω	60KΩ

TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4719-23



A PHOTOFAC STANDARD NOTATION SCHEMATIC
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THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

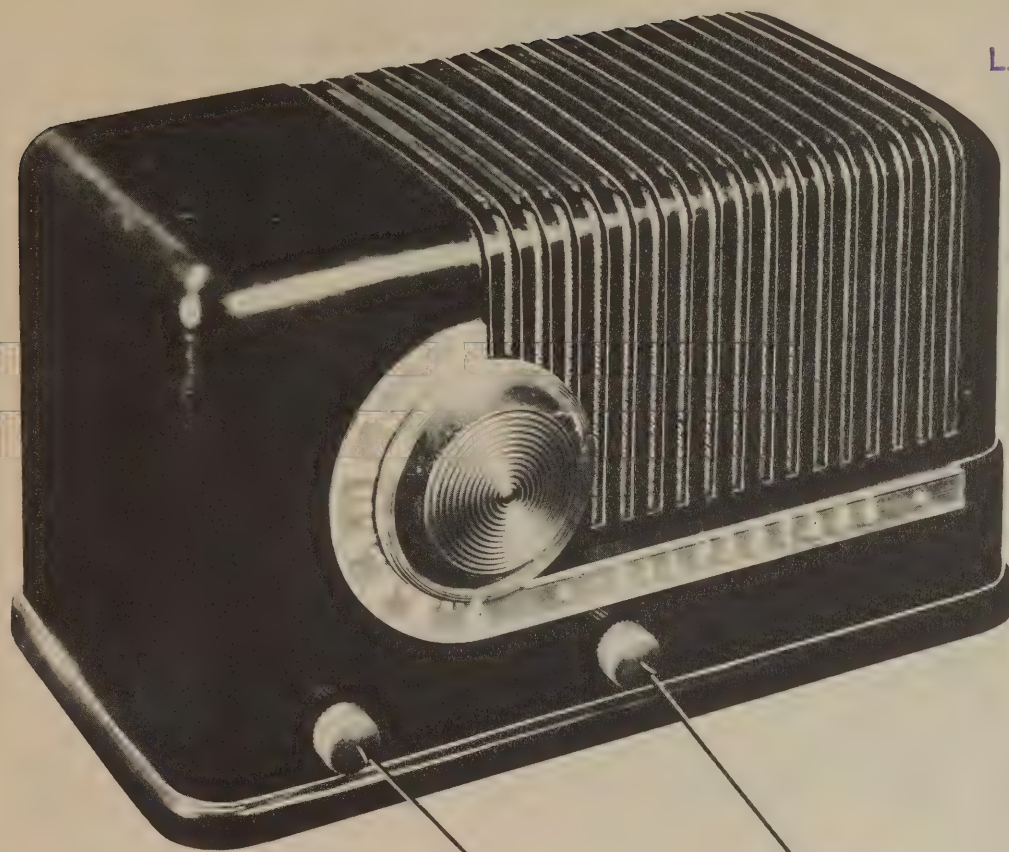
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

**SILVERTONE MODEL
7025 (Ch. 132.807-2)**

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

SILVERTONE MODEL 7025

TRADE NAME	Silvertone, Model 7025 (Ch. 132.807-2)		
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.		
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Ant.		
TUBES(FIVE)	Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.		
POWER SUPPLY	110-120 Volts AC-DC		
TUNING RANGE—BROADCAST	540-1620KC	RATING	.320 Amps. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 8 (grid) 12SA7. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	50MMFD.	High side to ext. ant. clip.(Shorting wire disconnected) Low side to chassis.	1620KC	"	"	A5	Adjust for maximum output.
3	50MMFD.	"	1400KC	Tune for maximum output.	"	A6	" " " "

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DATE 12/47 SET #29 FOLDER #4719-24

SILVERTONE MODEL
7025 (Ch. 132.807-2)

SILVERTONE MODEL
7025 (Ch. 132.807-2)

PARTS LIST AND DESCRIPTIONS

[SILVERTONE MODEL 7025]
[Ch. 132,807-2]

CHASSIS--TOP VIEW

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		SILVERTONE PART No.	STANDARD REPLACEMENT	
1	Converter	12SA7GT	12SA7GT	8AD
2	IF Amp.	12SK7GT	12SK7GT	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	
4	Power Output	35L6GT	35L6GT	
5	Rectifier	35Z5GT	35Z5GT	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		SILVERTONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	150	NL6707	PF3061	DY-4020-150	EL-24	UP4215
7	20		TP426	MPH-4-05	TC-15	DT485
8	.05		TP423	8-4-02	TC-12	DT482
9	.02		TP405	8-6-002	TC-22	DT682
10	.006		TP403	8-6-0005	TC-35	DT675
11	.002		TP426	8-6-002	TC-22	DT682
12	.002		TP429	8-4-05	TC-15	DT485
13	.01		TP429	8-4-2	TC-2	DT482
14	.01		TP421	8-4-01	TC-11	DT481
15	250	MC240	MC240	PO-5-325	1FM-325	SW5725
16	50	MC225	MC225	PO-5-45	1FM-45	SW505

1Do not use bypass section.

CONTROLS

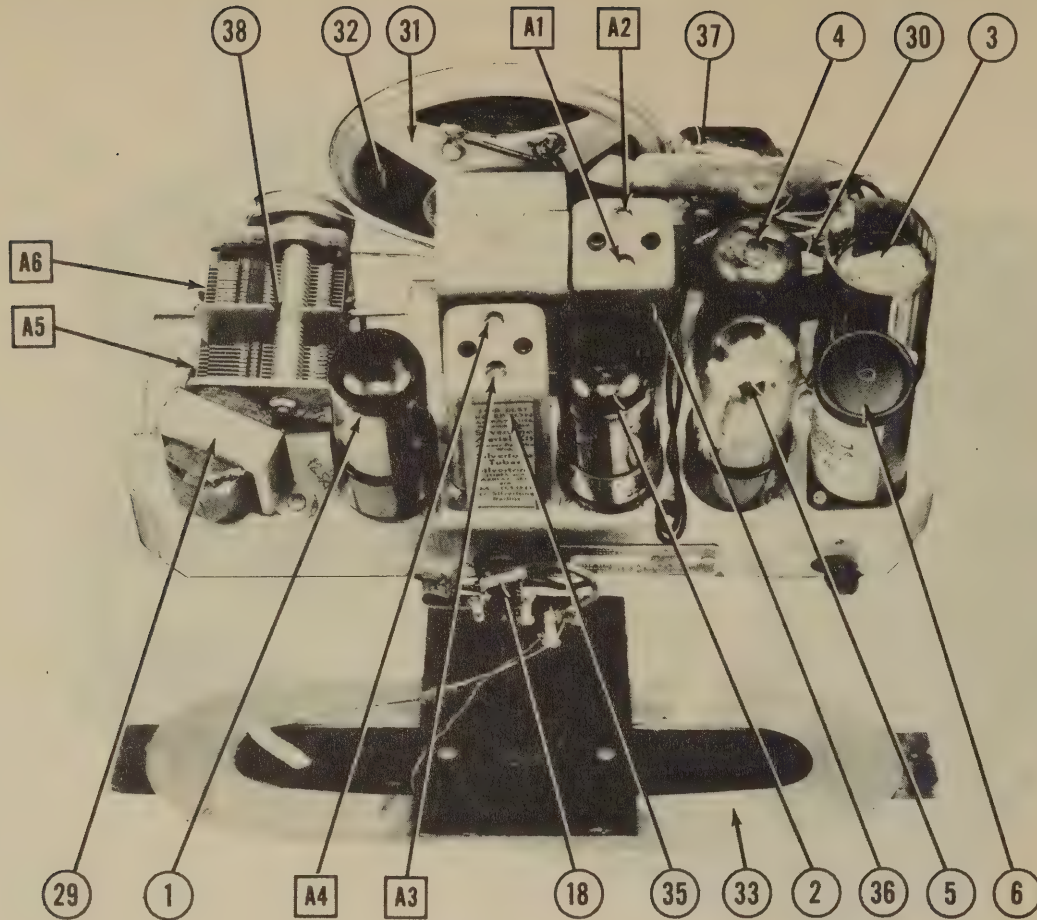
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	1 Meg. Shaft	N16671	MRE3	D13-137	M-63-2	Volume Control
17B	Switch	Not Req.	Not Req.	Not Req.	Not Req.	Attach to 17A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		SILVERTONE PART No.	IRC PART No.	
18	10K Ω		BTS-10K	Br.-Blk.-Or. Antenna Loading
19	10 Meg.		BTS-10 Meg.	Br.-Blk.-Blue AVC Network
20	20K Ω		BTS-22K	Red-Blk.-Or. Oscillator Grid
21	2 Meg.		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
22	15 Meg.		BTS-15 Meg.	Br.-Grn.-Blue AF Grid
23	500K Ω		BTS-470K	Grn.-Blk.-Yl. AF Plate Load
24	500K Ω		BTA-12K	Grn.-Blk.-Yl. Output Grid
25	150 Ω		BW-4-150	Br.-Grn.-Br. Output Cathode
26	12K Ω		BW-4-33	Br.-Red-Or. Bleeder
27	30 Ω		BW-4-33	Or.-Blk.-Blk. Surge Limiter
28	52 Ω		BW-2-56	Filament Dropping

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	SILVERTONE PART No.	STANCOR PART No.	
29	.031A	380 Ω	N16684	C-1706*	*Drill one new mounting hole.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI. SEC.	PRI. SEC.	SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	
30	2600Ω	4.1Ω	110Ω	.4Ω	N16685	A-3876	T22345	A-2928

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	SILVERTONE PART No.	JENSEN PART No.	
31	PM	4.1Ω	N16993		
32	CONE DIA.	VC DIA.	NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT		
	4"	1 1/2"			

R F COILS

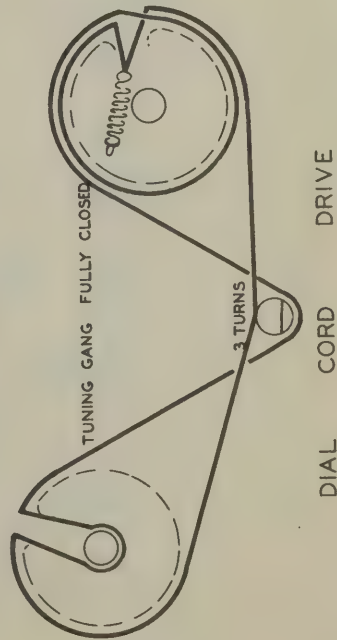
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI. SEC.		SILVERTONE PART No.	MEISSNER PART No.
33	Loop Ant.	13Ω	1.5Ω	N16680	
34	Osc. Coil	1Ω	6Ω	N17233	14-1040
35	Input IF	15Ω	15Ω	N17283	16-6666
36	Output IF	15Ω	15Ω	N16683	16-6667

DIAL LIGHT

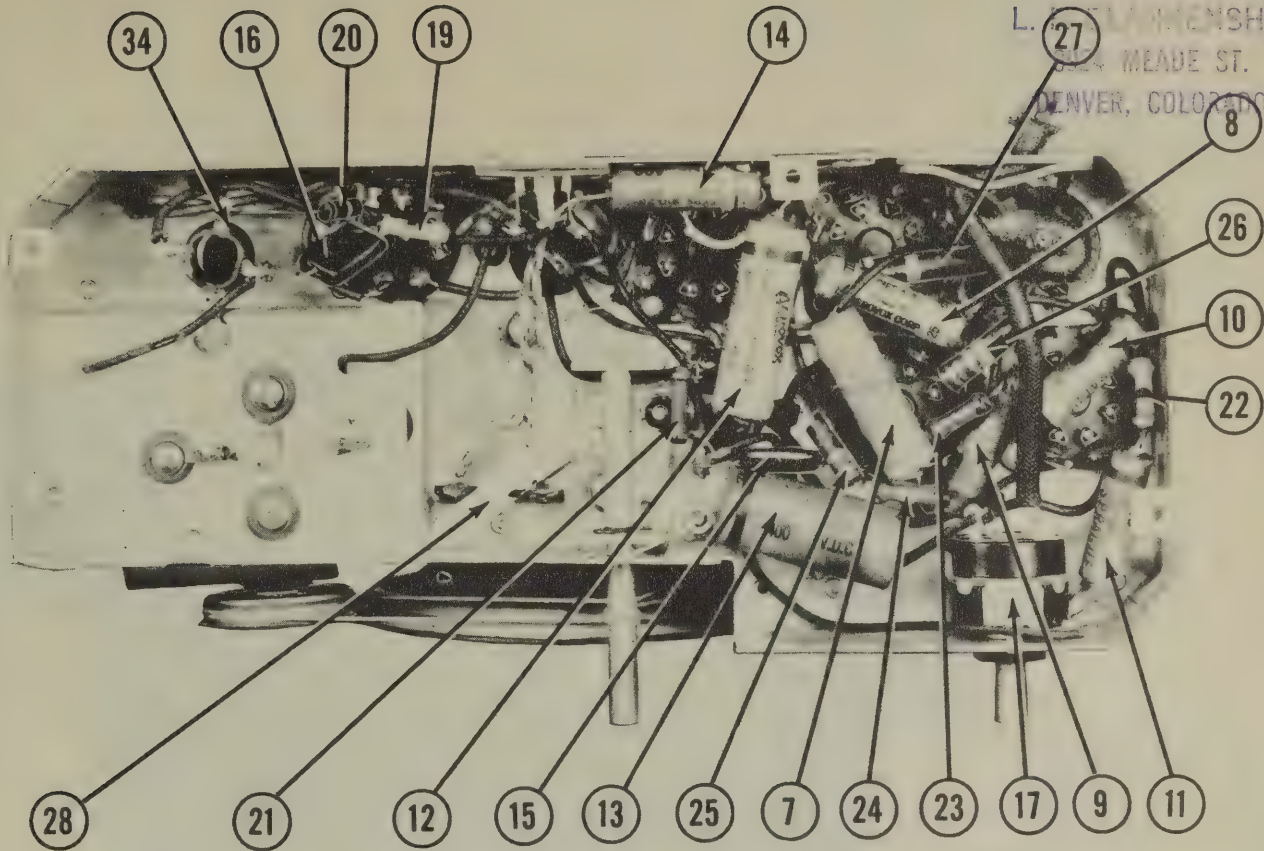
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SILVERTONE PART No.		
37	Screw	117					Type C7

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
38	12 Gang Var. Cap. Dial	N17250	(27-429MPP, 27-189 MPP)
	"	N17254	Scale and Nameplate
	"	N16658	Pointer



CHASSIS—BOTTOM VIEW

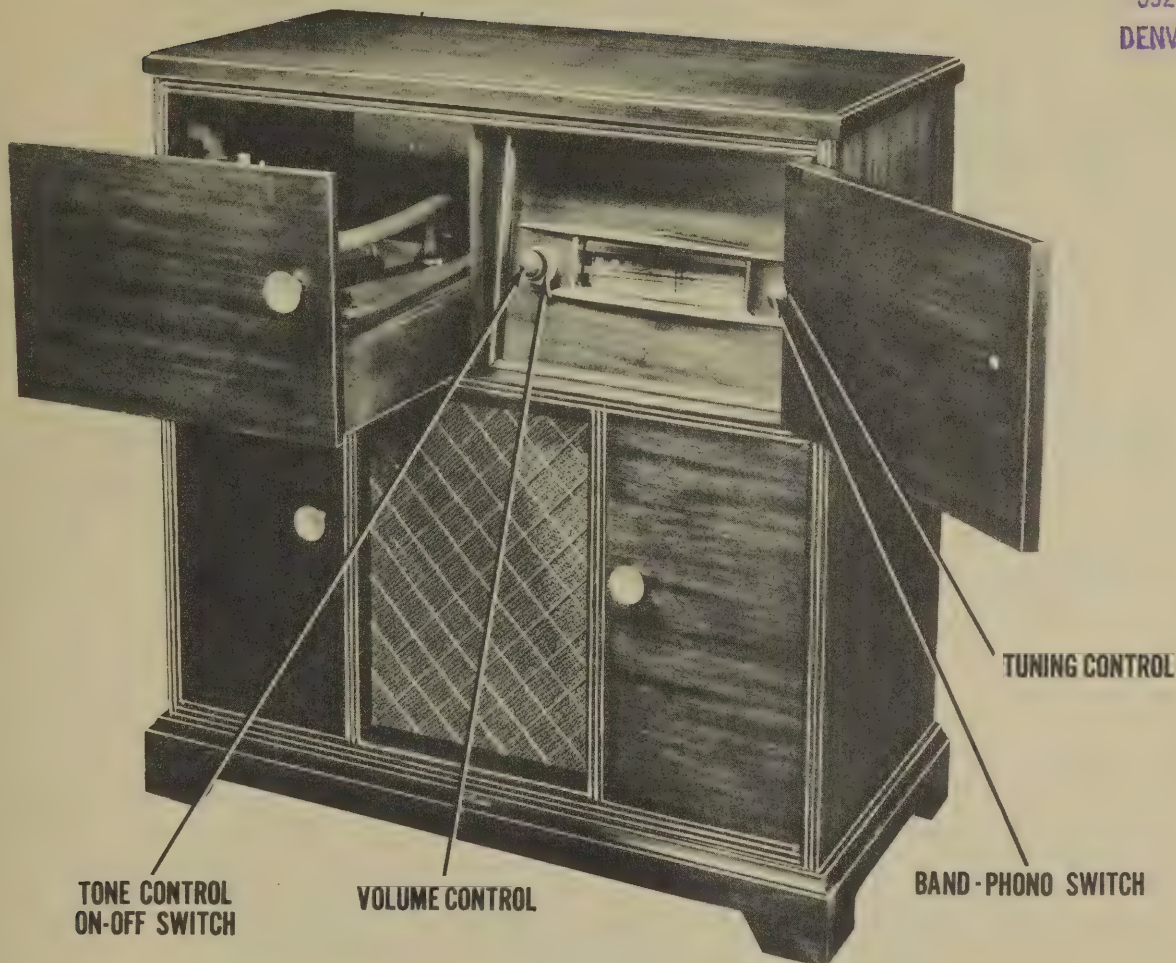


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300 WEADE ST.
DENVER, COLORADO

PROPERTY OF
L. F. Blankenship
3924 MEADE ST.
DENVER, COLORADO

SPARTON MODELS 1005,
1006, 1007, 1008 (Ch. 8-57)

SPARTON MODELS 1005, PAGE 1
1006, 1007, 1008 (Ch. 8-57)



SPARTON MODEL 1006

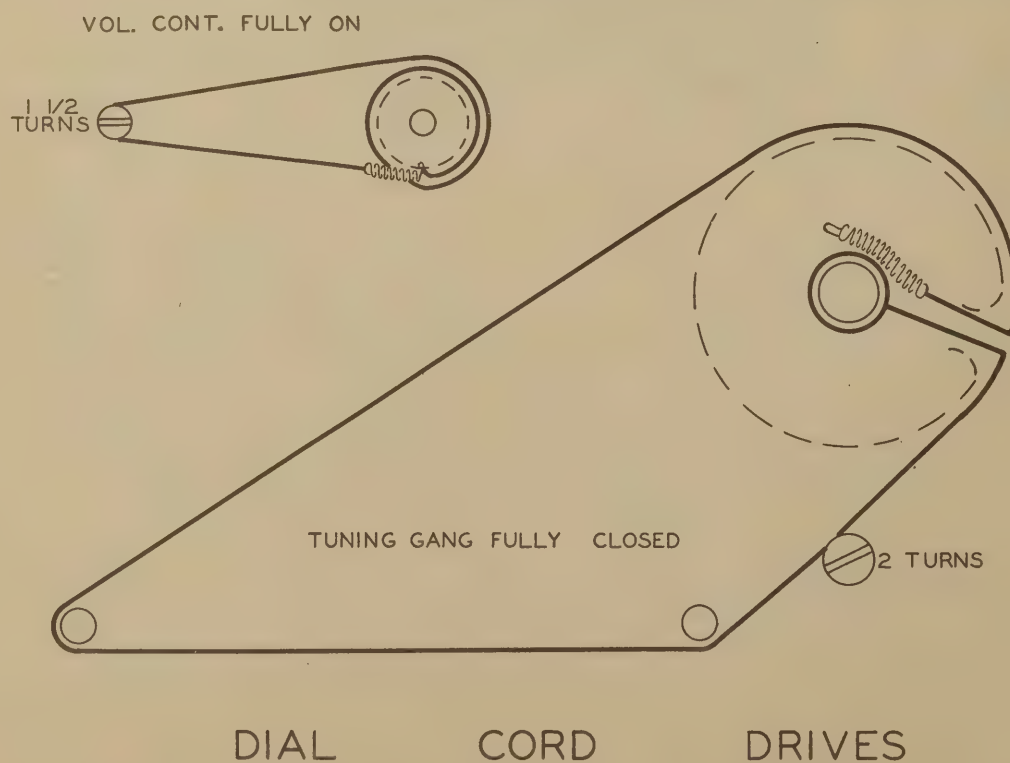
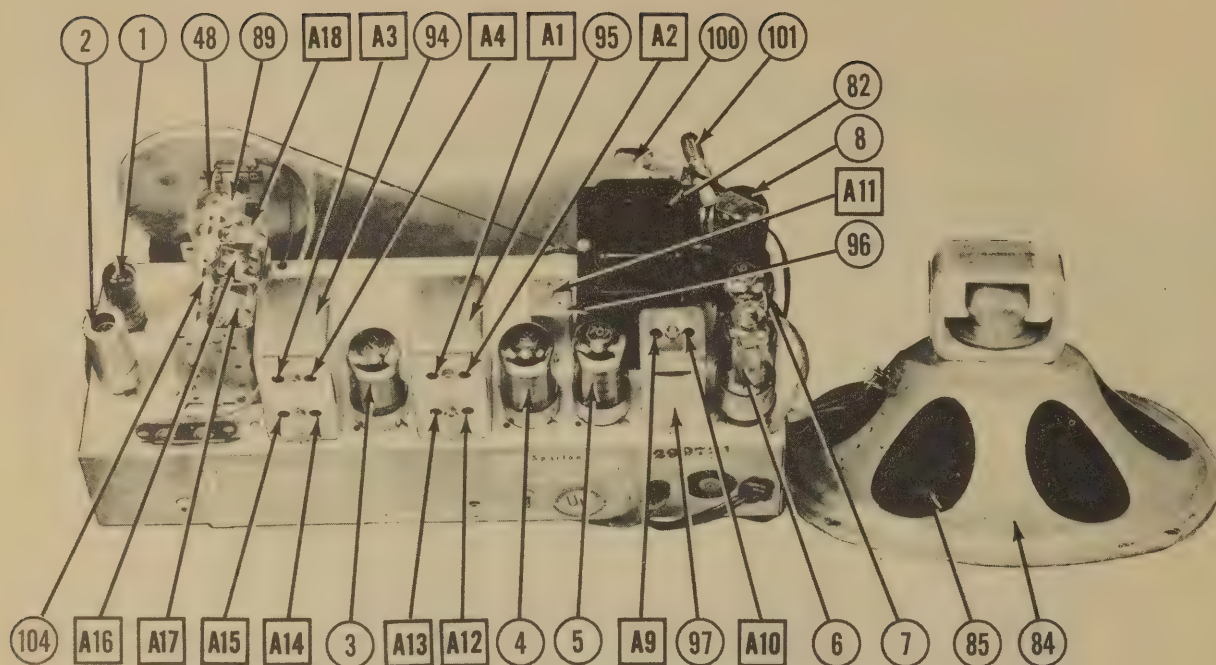
TRADE NAME	Sparton, Models 1005, 1006, 1007, 1008 (Ch. 8-57)		
MANUFACTURER	Sparks-Withington Co., Jackson, Mich.		
TYPE SET	AC Operated AM-FM Combination Phono-Radio Superheterodyne with Loop Ant.		
TUBES (EIGHT)	Types, 6BA6 RF Amp., 6BE6 Converter, 7A7 AM-FM IF Amp., 7A7 FM 2nd IF Amp., 7C7 FM 3rd IF Amp., 688GT Det.-AVC-AF, 7B5 Power Output, 5Y3GT Rectifier.		
POWER SUPPLY	110-120 Volts AC		
RATING	.560 Amps. @ 117 Volts AC		
TUNING RANGE - BROADCAST	540-1620KC	FREQ. MOD. -	87.5-109MC

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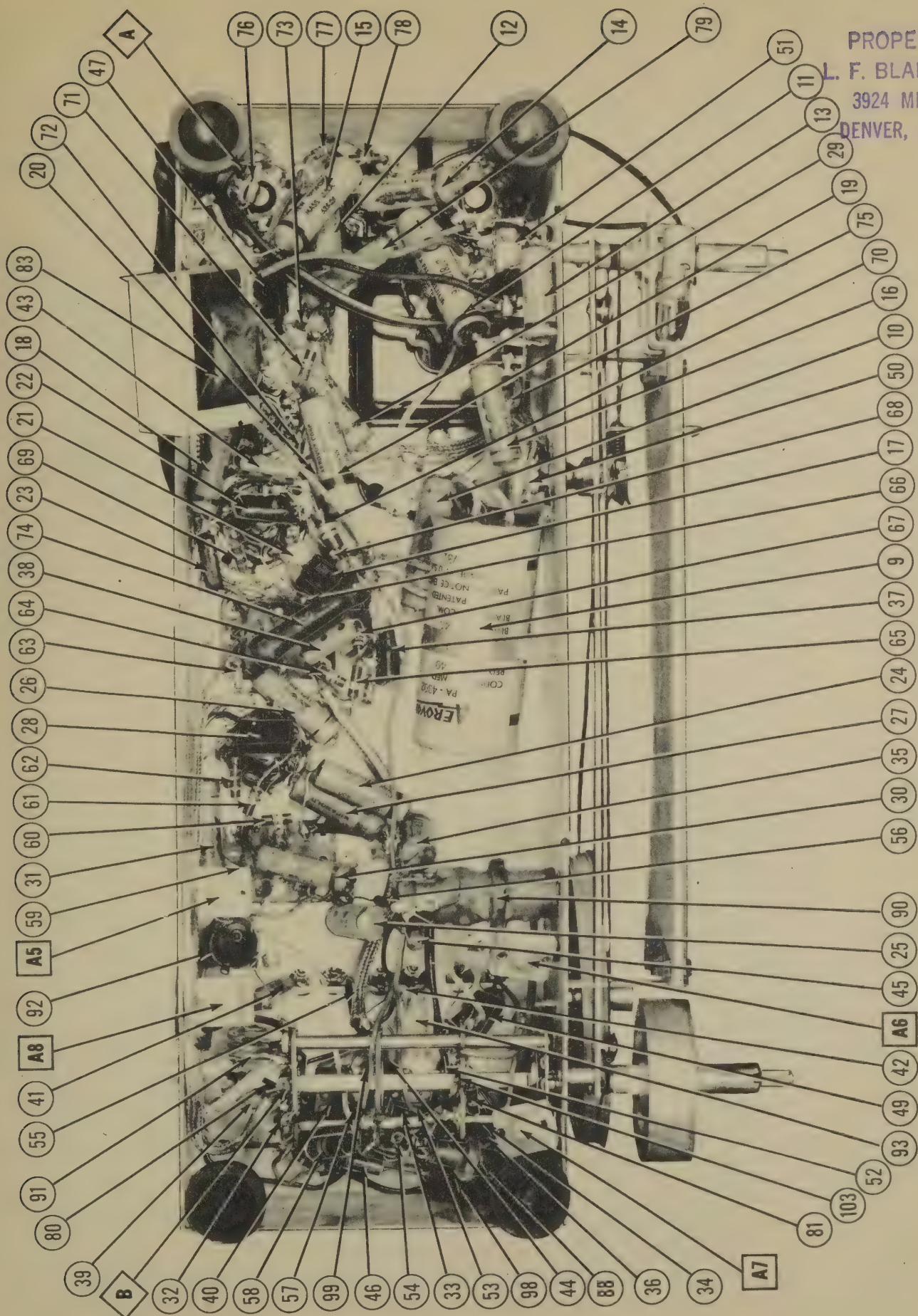
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CHASSIS—TOP VIEW



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3924 MEADE ST.
DENVER, COLORADO

**SPARTON MODELS 1005, PAGE 3
1006, 1007, 1008 (ch. 8-57)**



PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		SPARTON PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	68A6	68A6	7BK	
2	Converter	68E6	68E6	7CH	
3	At-FM-1F Amp.	7A7	7A7	8V	
4	FM 2nd IF Amp.	7A7	7A7	8V	
5	FM 3rd IF Amp.	7C7	7C7	8V	
6	Det.-AVC-AF	68SGT	68SGT	6BA	
7	Power Output	7B5	7B5	8CB	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		SPARTON PART No.	MALLORY PART No.	REPLACEMENT DATA			CORNEILL-DUBUIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT.			SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.		
9A	40	350	P44302	FP238*	DY-2X40-450*	EL-240*	AF8BJ*	UP-4445*	Filter - Blue
10	8	350							Filter - Red
11	20	150	P44303-6	TC42	M-8-150	UT-81	PRS-150-8	BR315	Stabilizing Capacitor
12	12	25	P44303-2	TC26	M-25-25	TA-25	PRS-25-25	BR202A	Output Cathode Bypass
13	11	1000	P4000-602	TP460	TH-16-006	TR-26	1084-006	MD16D6	Output Cathode Bypass
14	13	.004	P4000K-602	TP407	S-6-004	TC-24	684-004	DF604	Tone Compensation
15	14	.02	P4001-203	TP423	S-4-02	TC-12	484-02	DF482	Audio Coupling
16	15	.05	P4001K-203	TP426	S-4-05	TC-15	484-05	DF485	AF Plate Decoupling
17	16	.02	P4001K-203	TP423	S-4-02	TC-12	484-02	DF482	Audio Coupling
18	17	.01	P44325-5	TC285	M-3-21	1FM-21	1468-001	1W5D1	Diode Load Capacitor
19	18	.01	P4001K-103	TP421	S-4-01	TC-11	484-01	DF481	3rd IF Cathode Bypass
20	19	.05	P4001K-103	TP426	S-4-05	TC-15	484-05	DF485	3rd IF Screen Bypass
21	20	.01	P4001K-103	TP421	S-4-01	TC-11	484-01	DF481	RF Bypass Power Supp.
22	21	.05	P4001K-503	TC426	S-4-05	TC-15	484-05	DF485	2nd IF Cathode Bypass
23	22	.01	P4001K-503	TC285	M-3-21	1FM-21	1468-001	1W5D1	2nd IF Screen Bypass
24	23	.02	P4001K-203	TP423	M-3-21	1FM-21	1468-001	1W5D1	AVC Filter
25	24	.02	P4001K-203	TP423	M-3-21	1FM-21	1468-001	1W5D1	AVC Filter
26	25	.05	P4001K-503	TC426	S-4-05	TC-15	484-05	DF485	RF Bypass Power Supp.
27	26	.01	P4001K-503	TC421	S-4-01	TC-11	484-01	DF481	1st IF Plate Decoupl.
28	27	.05	P4001K-503	TC426	S-4-05	TC-15	484-05	DF485	1st IF Cathode Bypass
29	28	.05	P4001K-503	TC426	S-4-05	TC-15	484-05	DF485	1st IF Cathode Bypass
30	29	.05	P4001K-503	TC426	S-4-05	TC-15	484-05	DF485	1st IF Cathode Bypass
31	30	.01	P4001K-103	TP421	S-4-01	TC-11	484-01	DF481	AVC Filter
32	31	.01	P4001K-103	TP421	S-4-01	TC-11	484-01	DF481	AVC Filter
33	32	.01	P4001K-103	TP421	S-4-01	TC-11	484-01	DF481	Conv. Plate Decoupl.
34	33	.01	P44325-2	MC285	M-3-21	1FM-21	1468-001	1W5D1	Conv. Screen Bypass
35	34	.01	P44325-1	MC285	M-3-21	1FM-21	1468-001	1W5D1	RF Cathode Bypass
36	35	.05	P4001K-503	TP425	S-4-05	TC-15	484-05	DF485	RF Cathode Bypass
37	36	.01	P44325-2	MC285	M-3-21	1FM-21	1468-001	1W5D1	Conv. Grid Filter
38	37	.01	MC600-101	MC285	M-3-31	1FM-31	1468-0001	SW5T1	Diode #1 Filter
39	38	100	MC600-101	MC285	M-3-31	1FM-31	1468-0001	SW5T1	Diode #1 Filter
40	39	100	MC600-101	MC285	M-3-31	1FM-31	1468-0001	SW5T1	Diode #1 Filter
41	40	50	MC600-510	MC285	M-5-45	1FM-45	1468-00005	SW5Q5	Photo Coupling
42	41	46	P44328-2	MC285	M-5-45	1FM-45	1468-00005	SW5Q5	Photo Coupling
43	42	85	P44328-6	MC285	M-5-31	1FM-31	1468-0001	SW5T1	FM Osc. Grid Capacitor
44	43	100	MC600-101	MC285	M-3-31	1FM-31	1468-0001	SW5T1	FM Osc. Grid Capacitor
45	44	0	CC31H100K	MC5215	MOS. 5-41	MS-41	1468-00001	SW5Q1	FM Osc. Padder Cer.
46	45	51	CC31H100K	MC5215	MOS. 5-41	MS-41	1468-00001	SW5Q1	FM Osc. Padder Cer.
47	46	5	P44328-5	MC285	M-5-45	1FM-45	1468-00005	SW5Q5	FM Osc. Feedback Cer.
48	47	100	MC600-101	MC285	M-3-31	1FM-31	1468-0001	SW5T1	Fixed Trimmer Cer.
49	48	46	P44328-2	MC285	M-5-45	1FM-45	1468-00005	SW5Q5	RF Coupling Cer.
50	49	51	MC600-510	MC285	M-5-45	1FM-45	1468-00005	SW5Q5	De-emphasis
									FM Ant. Padder Cer.
									RF Coupling

*Use mounting clip.

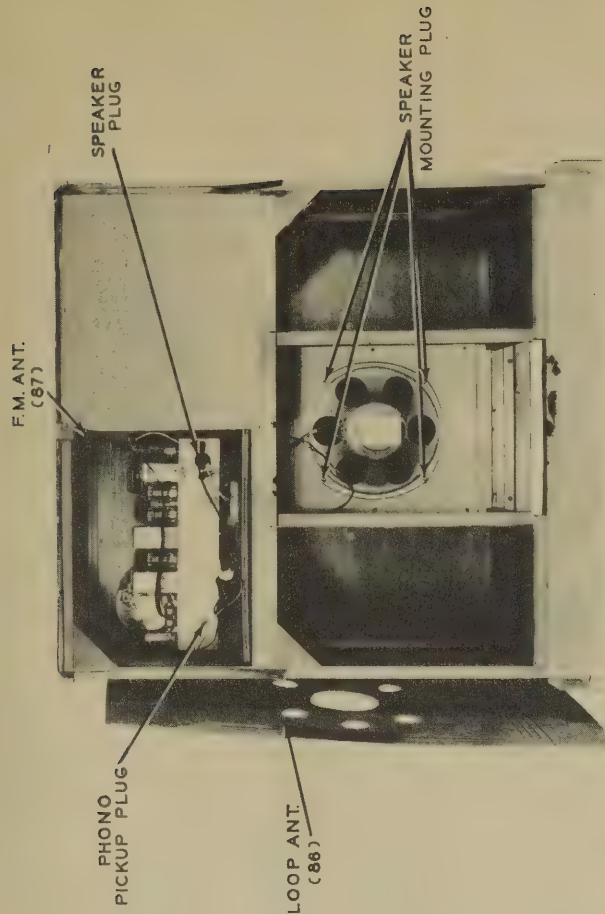
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	SPARTON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
50A	500K2	$\frac{1}{2}$	PA4407-1	NR48	D13-133	M-60-Z	Volume Control-See Note 1 Attach to 50A per instructions Tone Control-See Note 2 Attach to 51A per instructions
50B	B Shaft		Not Req.	Not Req.	A	Not Req.	
51A	500K2	$\frac{1}{2}$	PA4400-7	PK401	D13-133	AM-50-Z	
51B	B Shaft		Not Req.	Not Req.	E	K53-Z	
51C	C Switch			226	41	SW-A	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SPARTON PART No.	IRC PART No.	
52	1 Meg.		BR12S-105	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
53	690		BR12S-680	BW-4-68	Blue-Gray-Blk. RF Cathode
54	33K		BR12S-333	BTS-33K	Or.-Or.-Or. RF Screen Dropping
55	470		CR12S-470	BW-1-47	Yl.-Vl.-Blk. Parasitic Suppressor
56	1 Meg.		BR12S-105	BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
57	22K		BR12S-223	BTS-22K	Red-Red-Or. Oscillator Grid
58	22K		BR12S-223	EP-2-22K	Red-Red-Or. Converter Screen Dropping
59	1000Q		BR12S-104	BTS-100K	Br.-Blk.-Yl. AVC Network
60	100KQ		BR12S-104	BTS-100K	Gray-Red-Or. 1st IF Screen Dropping
61	82KQ		BR12S-823	BTS-82K	Red-Vl.-Br. 1st IF Cathode
62	270Q		BR12S-271	BW-4-270	Br.-Blk.-Yl. AVC Network
63	1000Q		BR12S-106	BTS-100K	Grn.-Blue-Or. Diode RF Filter
64	56KQ		BR12S-563	BTS-56K	Br.-Blk.-Yl. AVC Network
65	100KQ		BR12S-104	BTS-100K	Or.-Or.-Yl. AVC Network
66	330KQ		BR12S-334	BTS-330K	Gray-Red-Or. 2nd IF Screen Dropping
67	330KQ		BR12S-334	BTS-330K	Red-Vl.-Br. 2nd IF Cathode
68	270Q		BR12S-271	BW-4-270	Red-Red-Vl. 3rd IF Screen Dropping
69	10KQ		BR12S-103	BTA-10K	Gray-Red-Br. 3rd IF Cathode
70	220KQ		BR12S-224	BTS-220K	Br.-Blk.-Red 3rd IF Plate Decoupling
71	520Q		BR12S-521	BTS-520	Filter
72	1000Q		BR12S-102	BTS-1000	Br.-Blk.-Blue AF Grid
73	650Q		PA4200-4	AS-600	Grn.-Br.-Or. Ratio Detector Load
74	10 Meg.		BR12S-106	BTS-10 Meg.	Red-Red-Vl. AF Plate Load
75	51KQ		BR12S-513	BTS-47K	Grn.-Blue-Or. AF Plate Decoupling
76	220KQ		BR12S-224	BTS-220K	Yl.-Vl.-Br. Output Cathode
77	56KQ		BR12S-563	BTS-56K	Br.-Blk.-Grn. Series Phono
78	470Q		DR12S-471	BTS-470	Red-Red-Red Antenna Loading
80	1 Meg.		BR12S-105	BTS-1 Meg.	
81	2200Q		BR12S-222	BTS-2200	



TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA	
	PRI.	SEC. 1	SEC. 2	SEC. 3	THORDARSON PART No.
82	117V AC 1500V CT 15.0V AC 6.4V AC 0.56A @ 0.075A @ 2.0A @ 2.5A				P-6011†
	†Add series resistor to reduce plate voltage. Drill new mounting holes.				T22R02†
					P-2951†

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	SPARTON PART No.	THORDARSON PART No.	
83	6000Q	3.4Q	AB44056-1	A-3978	T22S46
					A-2931

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	SPARTON PART No.	JENSEN PART No.	
84	PM	3.4Q	PC-63000-12	ST-1201	†Replace output transformer to match 6-8Q voice coil.
85	CON. DIA.	VC DIA.	NOT READILY REPLACEABLE	USE COMPLETE SPEAKER	

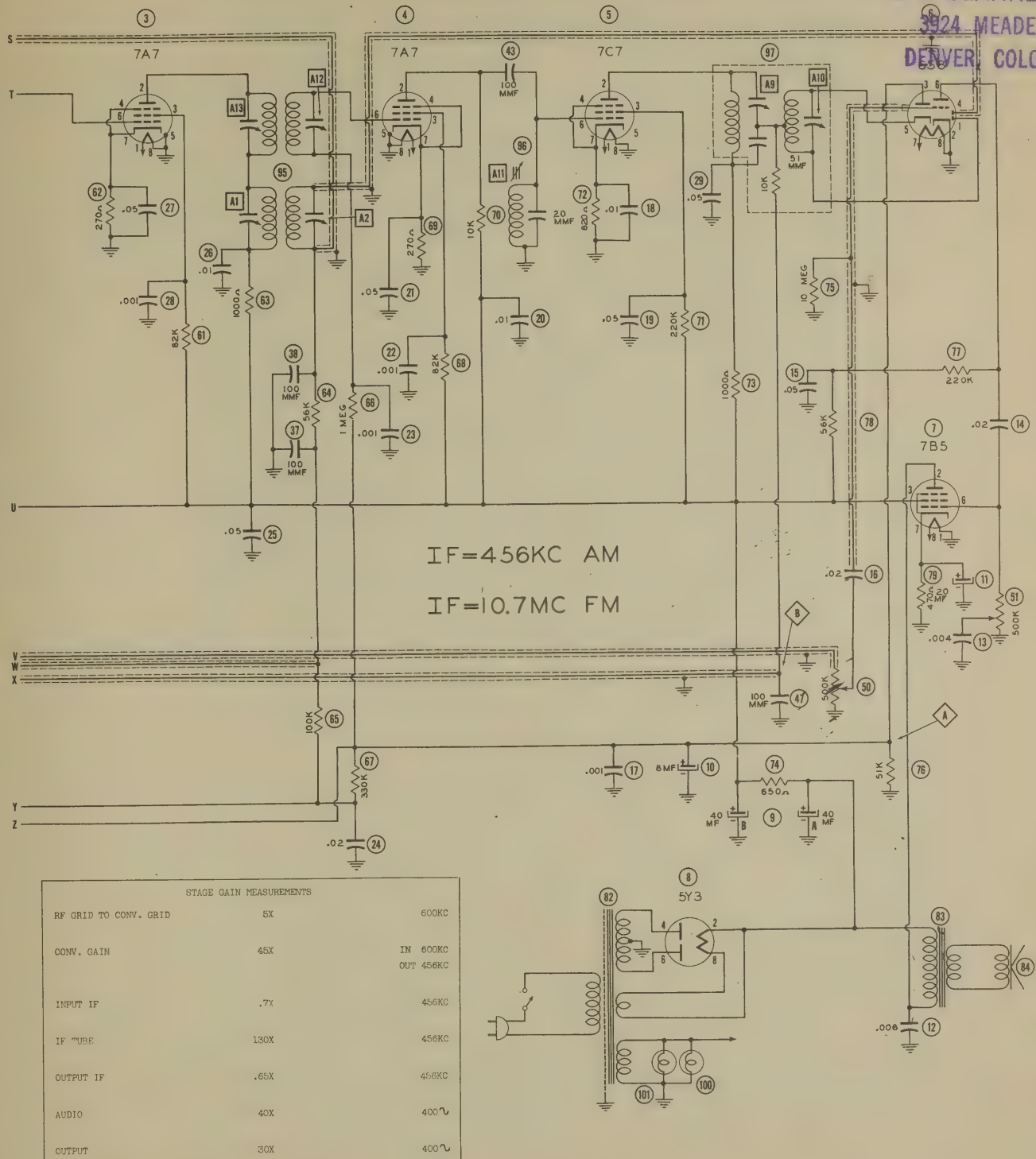
DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove ten screws holding panel on back of cabinet: Remove two leads from loop antenna and remove back panel.
3. Remove phono-pickup plug from chassis.
4. Remove speaker plug from chassis.
5. Disconnect phono-motor plug.
6. Remove FM dipole from terminal strip on back of chassis.
7. Remove three hex head screws holding chassis in cabinet. Remove chassis from cabinet.
8. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.

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SPARTON MODELS 1005, PAGE 5
1006, 1007, 1008 (Ch. 8-57)

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SPARTON MODELS 1005, PAGE 7
1006, 1007, 1008 (Ch. 8-57)

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.
 Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
 Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
 Dummy antenna consists of a 200 MMFD cap. in series with 20 microhenry choke with the choke shunted by a 400 MMFD cap. in series with a 100Ω carbon resistor.

AM ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .02 MFD.	High side to Pin 7 (grid) 6BE6. Low side to chassis.	456KC	BC (center position)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
2 Dummy Ant.	High side to green ant. lead. Low side to chassis.	1500KC	"	1500KC	"	A5,A6, A7	" " " "
3 "	"	600KC	"	Tune for maximum output.	"	A8	Rock tuning cap. and adjust for maximum output. Repeat Step 2 & 3 until no further improvement can be made. Check calibration at 600 and 1000KC.

FM ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use 60V synchronized sweep voltage from sig. gen. for horizontal deflection.
 There may be some phase shift in sync. sweep voltage which will result in a double pattern per Figure 2. This may be corrected by adding a capacitor of suitable value (.01 to .1 MFD) in series with output of sync. sweep from sig. gen. to horizontal input of scope.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4 .05 MFD.	High side to Pin 6 (grid) 7C7 3rd IF Tube (5). Low side to chassis.	10.7MC (freq. modulated with 450KC sweep, 60 modulation.)	FM (fully counter-clockwise)	108MC	Vertical input to Point B. Ground to chassis.	A9,A10	Adjust for maximum amplitude and symmetry with maximum straightness of diagonal line per pattern 1.
5 .05 MFD.	High side to Pin 6 (grid) of 7A7 1st IF Tube (3). Low side to chassis.	"	"	"	Vertical input to Point A. Ground to chassis.	A11,A12 A13	Disconnect 8 MFD cap. at Point A. Adjust for maximum amplitude and symmetry per Figure 3.
6 .05 MFD.	High side to Pin 7 (grid) of 6BE6. Low side to chassis.	"	"	"	"	A14, A15	Adjust for maximum amplitude and symmetry. Per pattern 3.
7 2 150Ω carbon res.	Connect to terminals on FM ant. terminal strip.	108MC	"	108MC	"	A16,A17 A18	Adjust A16 to center pattern (#3) on scope sweep line. Adjust A17 & A18 for maximum amplitude

FM ALIGNMENT USING AM SIGNAL GENERATOR, OUTPUT METER AND VTVM

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
4 .05 MFD	High side to Pin 6 (grid) of 7A7 2nd IF Tube (4). Low side to chassis.	10.7MC (400V amplitude modulation)	FM	108MC	Across voice coil	A10,A11 A9	Adjust for maximum output in order given.
5 .05 MFD.	High side to Pin #6 (grid) of 7A7 1st IF Amp. (3). Low side to chassis.	"	"	"	"	A12, A13	Connect a 15KΩ resistor from Pin 6 (grid) 7A7 2nd IF Tube (4) to chassis. Adjust for maximum output. Leave resistor connected.
6 .05 MFD	High side to Pin #7 (grid) of 6BE6. Low side to chassis.	"	"	"	"	A14, A15	Connect 15KΩ resistor from Pin 6 (grid) 7A7 1st IF Tube (3) to chassis. Adjust for maximum output. Repeat Steps 4, 5 & 6 until no further improvement can be made. Remove 2 15KΩ resistors
7 .05 MFD	"	"	"	"	"	A10	Adjust for minimum output
8 2 150Ω carbon res.	Connect to terminals on FM ant. terminal strip.	108MC	"	108MC	CONNECT VTVM DC probe to Point A. Common lead to chassis.	A16, A17, A18.	Adjust for maximum deflection in order given and repeat. Check calibration at 88MC.



FIGURE 1



FIGURE 2



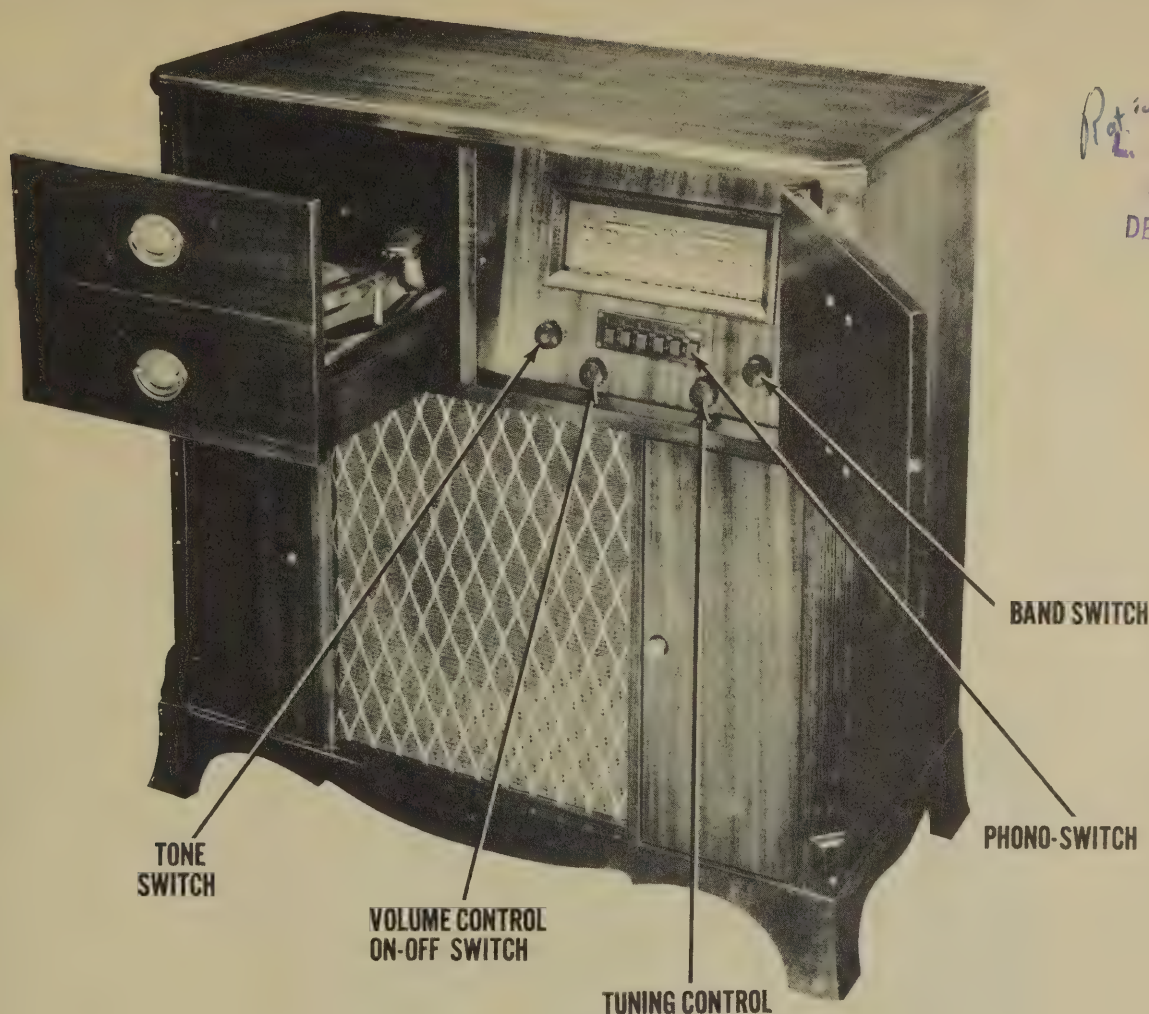
FIGURE 3

PHOTOFACT* Folder

**STEWART-WARNER MODELS A92CR3,
A92CR3S (Ch. 9028-C), A92CR6,
A92CR6S (Ch. 9028-F)**

**STEWART-WARNER MODELS A92CR3,
A92CR3S (Ch. 9028-C), A92CR6,
A92CR6S (Ch. 9028-F)**

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STEWART WARNER MODEL A92CR6

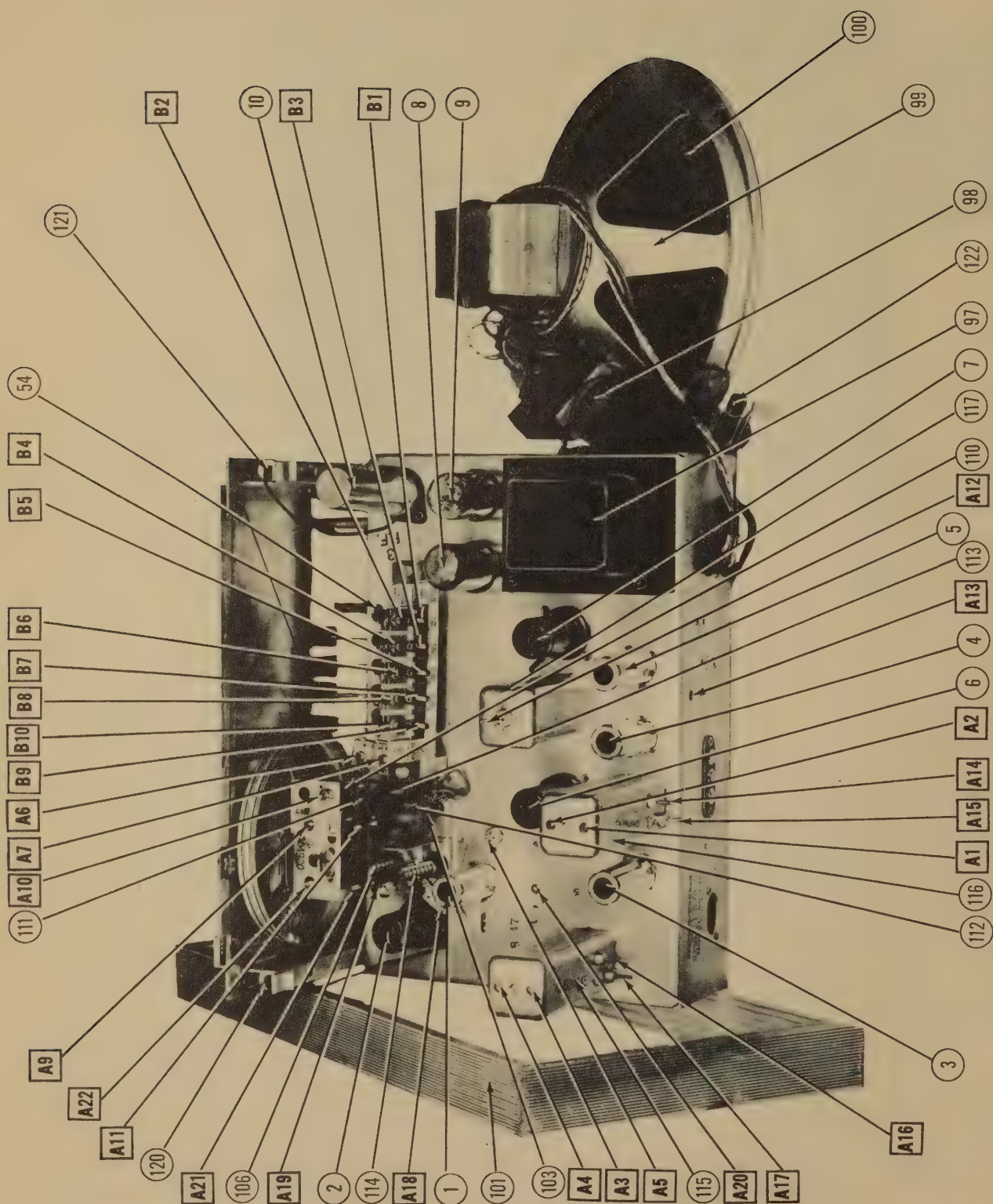
TRADE NAME	Stewart Warner, Models A92CR3, A92CR3S (Ch. 9028-C), A92CR6, A92CR6S (Ch. 9028-F).
MANUFACTURER	Stewart Warner Corp., 1826 Diversey Pkwy., Chicago, Ill.
TYPE SET	AC Operated FM-AM Radio-Phono Combination Superheterodyne Receiver with Loop Antenna and Pushbutton Tuning.
TUBES (NINE)	Types, 6BA6 RF Amp., 6SB7Y Converter, (2) 6BA6 IF Amp., 6AL5 Discriminator, 6SQ7 Det.-AVC-AF, 6SJ7 AF Amp., 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	.860 Amp. @ 117 Volts AC
FREQUENCY RANGES - BROADCAST	540-1600KC, FREQ. MOD. 88 - 108MC

**STEWART-WARNER MODELS A92CR3,
A92CR3S (Ch. 9028-C), A92CR6,
A92CR6S (Ch. 9028-F) PAGE 1**

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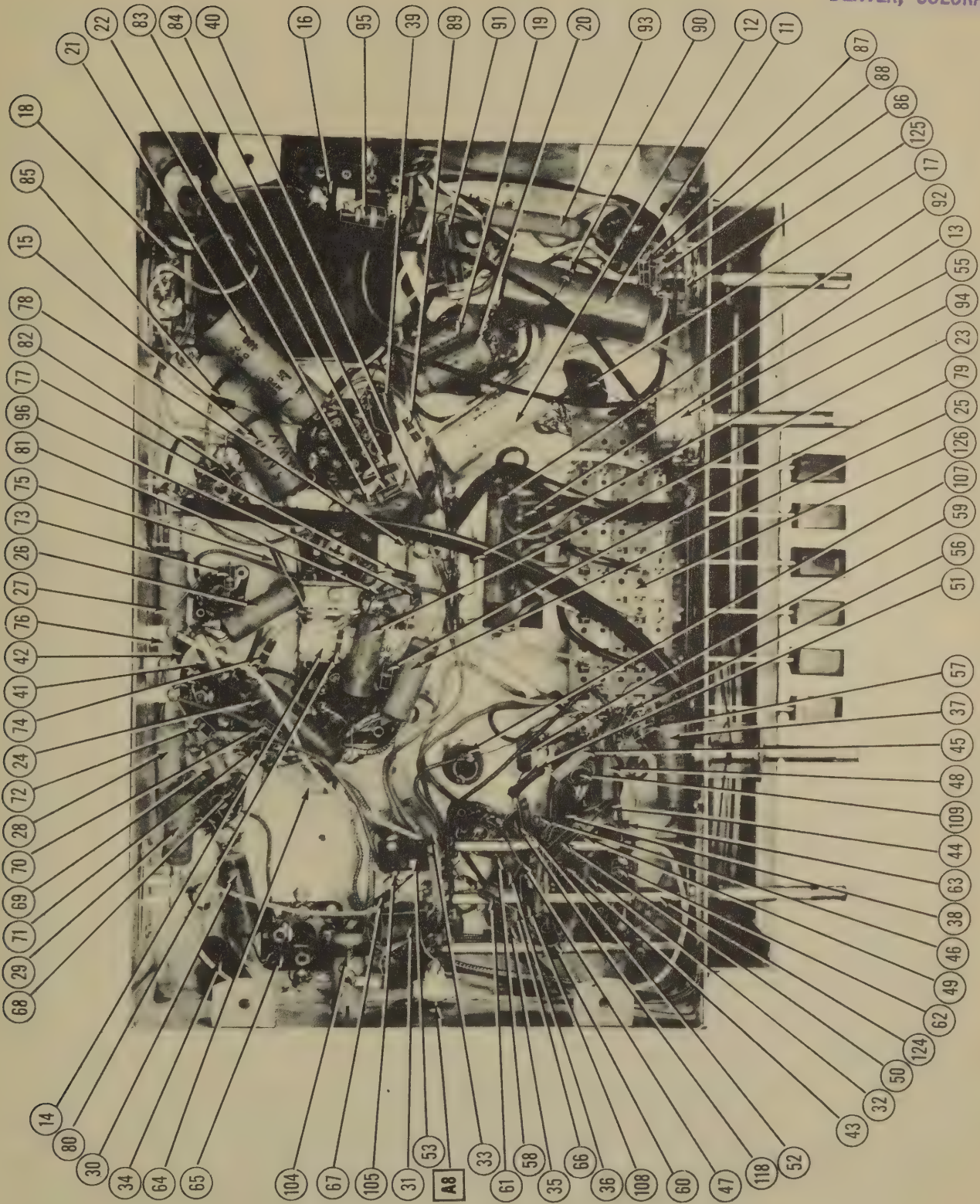
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STEWART-WARNER MODELS A92CR3,
A92CR3S (Ch. 9028-C), A92CR6,
A92CR6S (Ch. 9028-F) PAGE 3



PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		STEWART-WARNER PART No.	STANDARD REPLACEMENT	BMA BASE TYPE	
1	RF Amp.	6BA6	6BA6	7BK	
2	Converter	6SB7Y	6SB7Y	8R	
3	IF Amp.	6BA6	6BA6	7BK	
4	2nd IF Amp.	6BA6	6BA6	7BK	
5	Discriminator	6AL5	6AL5	8BT	
6	Det.-AVC-AF	6SQ7	6SQ7	8Q	
7	AF Amp.	6SJ7	6SJ7	8N	
8	Power Output	6V6GT	6V6GT	7AC	
9	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		STEWART-WARNER PART No.	HALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
10A	20	161133	FP339	DY-312	EL-205	AF44J
10B	450					
10C	15					
11	16	505150	TC74	M-16-450	UT-16	PRSA50-10
12	4	504719	TC70	M-4-450	UT-4	PRSA450-16
13	4	505150	TC70	M-4-450	UT-4	PRSA450-16
14	4	504719	TC70	M-4-450	UT-4	PRSA450-16
15	5	504937	TC40	TA-55	TA-55	PRSA150-4
16	.01	504937	TP421	MPH-6-01	TC-11	484-01
17	.01	504937	TP421	MPH-6-01	TC-11	484-01
18	.006	504937	TP409	S-6-006	TC-26	484-06
19	.02	504937	TP423	S-4-02	TC-12	484-02
20	.01	504937	TP410	S-6-01	TC-11	484-01
21	.25	504937	TP430	S-4-25	TC-24	484-25
22	.004	504937	TP407	S-6-004	TC-11	484-01
23	.01	504937	TP410	S-6-01	TC-11	484-01
24	.05	504937	TP426	S-4-05	TC-11	484-01
25	.01	504937	TP410	S-6-01	TC-11	484-01
26	.01	504937	TP410	S-6-01	TC-11	484-01
27	.01	504937	TP410	S-6-01	TC-11	484-01
28	.01	504937	TP410	S-6-01	TC-11	484-01
29	.01	504937	TP410	S-6-01	TC-11	484-01
30	.05	504937	TP426	S-4-05	TC-11	484-01
31	.01	504937	TP410	S-6-01	TC-11	484-01
32	.01	504937	TP410	S-6-01	TC-11	484-01
33	.02	504723	TP423	S-4-02	TC-12	484-02
34	.05	504723	TP423	S-4-05	TC-12	484-02
35	.01	504723	TP410	S-6-01	TC-11	484-01
36	.05	504447	TP426	S-4-05	TC-11	484-01
37	.01	504723	TP410	S-6-01	TC-11	484-01
38	.004	504723	TP407	S-6-004	TC-24	484-04
39	260	504723	MP407	M-4-260	TC-24	484-04
40	150	504723	MP407	M-4-150	TC-24	484-04
41	500	504723	MP407	M-4-500	TC-24	484-04
42	100	504723	MP407	M-4-100	TC-24	484-04
43	15	504723	MP407	M-4-15	TC-24	484-04
44	47	504723	MP407	M-4-47	TC-24	484-04
45	500	504723	MP407	M-4-500	TC-24	484-04
46	5	504905	MP407	M-4-5	TC-24	484-04
47	500	504905	MP407	M-4-500	TC-24	484-04
48	200	504905	MP407	M-4-200	TC-24	484-04
49	47	504905	MP407	M-4-47	TC-24	484-04
50	100	504905	MP407	M-4-100	TC-24	484-04
51	39	504905	MP407	M-4-39	TC-24	484-04
52	1000	504905	MP407	M-4-1000	TC-24	484-04
53	30	504905	MP407	M-4-30	TC-24	484-04
54	39	504905	MP407	M-4-39	TC-24	484-04
127	.01	504905	MP407	M-4-01	TC-24	484-04
128	100	504905	MP407	M-4-100	TC-24	484-04

Used in "S" models only.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		STEWART-WARNER PART No.	HALLORY PART No.	CLAROSTAT PART No.	
55A	500K Ω	502148	MK401	D13-133	Volume Control
55B	Shaft	" "	Not Req.	E	Attach to 55A per Instructions
55C	Switch	" "	M26	SW-A	" "

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		STEWART-WARNER PART No.	HALLORY PART No.	IRC PART No.	
56	68K Ω	502408	BTS-68K	BTS-100K	Blue-Gray-Or. Phono Shunt
57	100K Ω	502132	BTS-100K	BW-4-68	Br.-Blk.-Yl. Series Phono
58	68 Ω	502794	BW-4-68	BTA-33K	Blue-Gray-Blk. RF Cathode
59	33K Ω	504732	BTA-33K	Br.-Or.-Or.	Br.-Or.-Or. RF Screen Dropping
60	10K Ω	504732	BTA-33K	Br.-Blk.-Or.	Br.-Blk.-Or. RF Plate Load-See Note 1
61	220K Ω	502128	BTS-220K	BTS-220K	Red-Red-Red RF Plate Decoupling
62	22K Ω	502130	BTS-22K	BTS-22K	Red-Red-Or. Converter Grid
63	22K Ω	502130	BTS-22K	BTS-22K	Red-Red-Or. Converter Grid
64	560K Ω	504907	BTA-560K	Grn.-Blue-Yl.	Grn.-Blue-Yl. AVC Network
65	470K Ω	502134	BTS-470K	BTS-470K	Yl.-Yl.-Yl. AVC Network
66	22K Ω	502130	BTS-22K	BTS-22K	Red-Red-Or. Oscillator Grid
67	220K Ω	502128	BTS-220K	BW-4-68	Red-Red-Red Converter Plate Decoupling
68	68 Ω	502794	BW-4-68	BTA-33K	Blue-Gray-Blk. IF Cathode - See Note 2
69	33K Ω	502466	BTA-33K	BTS-220K	Or.-Or.-Or. RF Screen Dropping
70	220K Ω	502128	BTS-220K	BTS-680K	Red-Red-Red IF Plate Decoupling
71	680K Ω	502267	BTS-680K	BTS-47K	Blue-Gray-Yl. AVC Network
72	47K Ω	502131	BTS-47K	BW-4-68	Yl.-Yl.-Or. Plate Filter
73	68 Ω	502794	BW-4-68	BTA-33K	Blue-Gray-Blk. FM IF Cathode
74	220K Ω	502133	BTS-220K	BTS-220K	Red-Red-Yl. AVC Network
75	2.2 Meg.	502133	BTS-2.2 Meg.	BTS-55K	Red-Red-Grn. AVC Network
76	33K Ω	502466	BTA-33K	BTS-55K	Or.-Or.-Or. FM IF Screen Dropping
77	220K Ω	502128	BTS-220K	BTS-55K	Red-Red-Red FM IF Plate Decoupling
78	330K Ω	502514	BTS-330K	BTS-550K	Or.-Or.-Red De-emphasis
79	10 Meg.	502136	BTS-10 Meg.	BTS-10K	Br.-Blk.-Yl. AF Plate Load
80	100K Ω	502132	BTS-100K	BTS-330K	Or.-Or.-Yl. AF Plate Decoupling
81	330K Ω	502392	BTS-330K	BTS-47K	Red-Red-Or. Ratio Detector Bias Network
82	22K Ω	502468	BTA-22K	BTS-4.7 Meg.	Yl.-Yl.-Grn. AF Grid
83	4.7 Meg.	502468	BTA-4.7 Meg.	BTS-1500	Br.-Grn.-Red AF Cathode-See Note 3
84	150K Ω	502406	BTS-150K	BTS-2.2 Meg.	Red-Red-Grn. AF Screen Dropping
85	2.2 Meg.	502135	BTS-2.2 Meg.	BTS-4.7 Meg.	Yl.-Yl.-Grn. Tone Compensation
86	4.7K Ω	502131	BTS-47K	Yl.-Yl.-Or.	Yl.-Yl.-Or. " "
87	47K Ω	502291	BTS-470K	BTS-470K	Red-Red-Yl. AF Plate Load
88	470K Ω	502133	BTS-470K	BTS-220K	Yl.-Yl.-Yl. Output Grid
89	220K Ω	502134	BTS-220K	BW-1-47	Yl.-Yl.-Blk. Parasitic Suppressor
90	47K Ω	502454	BW-1-47	BTS-12K	Br.-Red-Or. Filter
91	472	504731	BTS-12K	BTS-1000	Br.-Blk.-Red
92	12K Ω	504731	BTS-12K	BW-2-120	Br.-Or.-Br. Bias Network
93	12K Ω	504731	BTS-12K	BTS-10	Br.-Or.-Blk.
94	100K Ω	502479	BW-2-120	BTS-680K	Blue-Gray-Yl. RF Grid-See Note 4
95	130K Ω	504728	BTS-130K	BTS-470	Yl.-Yl.-Br. Feedback-See Note 4
129	680K Ω	502267	BTS-680K		
130	470K Ω	502126	BTS-470K		

Note 1 - In Chassis "S" 1500 Ω is used in this application.

Note 2 - Not used in Chassis "S".

Note 3 - In Chassis "S" 1000 Ω is used in this application.

Note 4 - Used in Chassis "S" only.

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA			STANCOR PART No.	THORADSON PART No.	MERIT PART No.
		SEC. 1	SEC. 2	SEC. 3			
97	117V AC	640V CT	4.8V AC	6.1V AC	504643	P-6013	P-2553
	86 .86A	@ .094A	@ 2.0A	@ 3.2A			

PARTS LIST AND DESCRIPTIONS (Continued)

PARTS LIST AND DESCRIPTIONS (Continued)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.		STEWART-WARNER PART No.	STANCOR PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.				
98A	55004	3.4Ω	300Ω	.6Ω	505029	A-3824	T22858	Used with Speaker
B					505394			" " " "
C					502954			" " " "

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC IMP.	STEWART-WARNER PART No.	JENSEN PART No.	
99A	1000Ω	3.4Ω	E-502302	SP-175	
B			O-502302	Ind. F10-S	
C			M-502302		Alternate Speaker
100	CONV. DIA. 1 1/4"	VC DIA. 1 1/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	STEWART-WARNER PART No.	MEISSNER PART No.	
101	Loop Ant.		1.5Ω	504302		
102	FM Ant.		10Ω	504895		
103	BC Ant. Coill		2.5Ω	505151		
104	PB Ant. Coill		0Ω	505041		
105	FM Ant. Coill		0Ω	504692		
106	FM RF Coill	0Ω	0Ω	505159		
107	Wave Trap		26Ω	504670		
108	RF Choke		.1Ω	504675		
109	" "		.20Ω	504673		
110	BC Osc.		5.5Ω	505155		
111	Shunt Coill		3.5Ω	505153		
112	BC Osc. Coill		.1Ω	505157		
113	Series Coill		INF.	505158		
114	Comp. Coill		0Ω	505159		
115A	FM Osc. Coill	18Ω	18Ω*	504645		Items 115A & 115B are in same can.
B	FM Input IF	1.5Ω				
116A	BC Output IF	23Ω#	17Ω	504646		Items 116A & 116B are in same can.
B	FM Output IF		1Ω			
117	Disc. Trans.	1.2Ω	.5Ω	504690		
118	File. RF Choke		.1Ω	504675		
119	RF Choke		.1Ω	505668		
131	Loop Ant.					Used in "S" models only.

*Includes both sec. #Includes both pri.

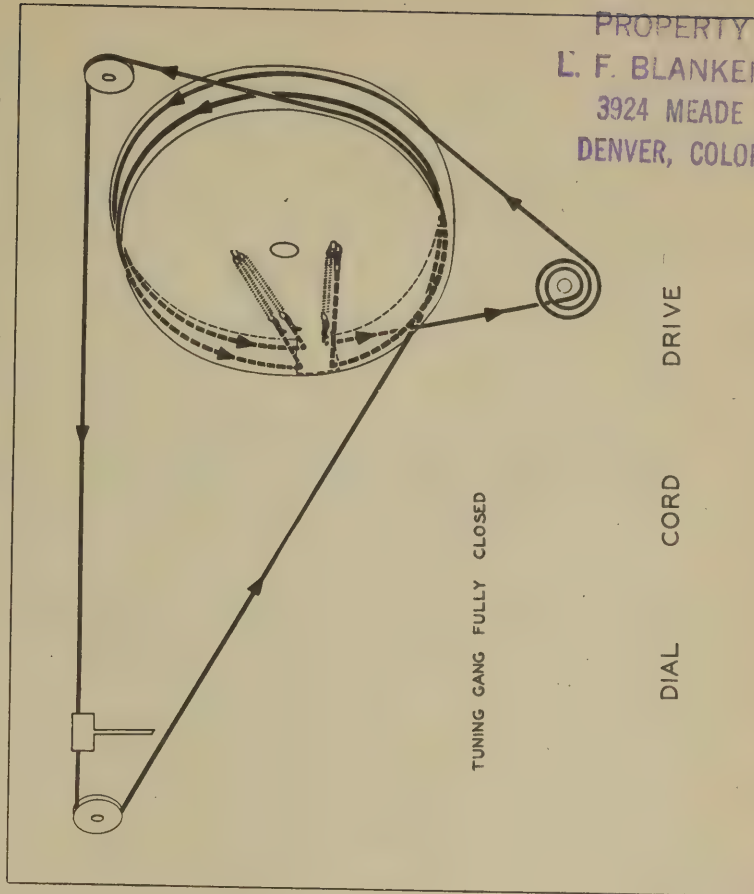
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					STEWART-WARNER PART No.	MEISSNER PART No.	
120	Bayonet	8-8	0.25	Blue	110629		Type 44
121	" "	" "	" "	" "	110629		" "
122	" "	" "	" "	" "	110629		" "

ITEM No.	REPLACEMENT DATA		REMARKS
	STEWART-WARNER PART No.	ASTATIC PART No.	
123	502461	L-71	

MISCELLANEOUS

ITEM No.	PART NAME	STEWART-WARNER PART No.	NOTES
124	Bandswitch	504593	
125	Tone Switch	504592	
126	Pushbutton Assy	504596	
A61	Dual Trimmer	504712	
A7	"		
A8	Trimmer	504956	1220-340 MTF
A13	"	504682	150-130 MTF
A18	"	504682	390-550 MTF
A19	"	502757	35-55 MTF
A20	"	502757	6.5-35 MTF
	"	504683	6.5-35 MTF
	"	504683	5-20 MTF
	Dial Scale	504839	
	Dial Pointer	504838	
	Needle	502460	Phonograph



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STEWART-WARNER MODELS A92CR3,
A92CR3S (Ch. 9028-C), A92CR6,
A92CR6S (Ch. 9028-F) PAGE 5

AM ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Disconnect leads from FM antenna terminal strip at back of chassis; also disconnect all other plugs on rear of chassis and remove chassis from cabinet. Remove speaker from cabinet and re-connect plug to chassis. Remove the AM Loop Antenna.

If alignment of both AM & FM channels is required it is necessary to align the AM channel first, then align the FM channel.

Do not attempt to reposition pointer by releasing it from clip on dial cord except during AM alignment (Step 4). If pointer is moved it will necessitate re-alignment of the RF section of the FM channel (Steps 17-19).

For AM alignment wind one turn of insulated wire around frame of the loop to provide coupling to the signal generator. Keep loop in same relative position to the chassis as when mounted in cabinet during AM alignment.

Dress leads from slug tuner assembly and pushbutton switch away from the wave trap coil and close to the chassis.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

After chassis is mounted in cabinet spread the loop leads as much as possible. Do not twist or tape these leads together.

AM ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to ungrounded side of trimmer A7. Low side to chassis.	455KC	BC (center position)	Any position where interfering signal is not received.	Across voice coil	A1,A2,A3,A4.	Adjust for maximum output. Repeat adjustments..
2 .1 MFD.	"	"	"	"	"	A5	Adjust for minimum output.
If position of AM Tuner Slugs have been disturbed or if coil or slug has been replaced omit Steps 3-6 inclusive and proceed with Step 7. If not, proceed with Step 3.							
3 500MMF Mica.	Connect to coupling turn on loop. (See pre-alignment instructions)	535KC	BC (center pos.)	Set slug tuner fully closed.	Across voice coil	A6	Adjust for maximum output.
4 "	"	1000KC	"	Tune for maximum output.	"	-	Pointer should be under 1000KC calibration mark. (Wide mark slightly to right of 100). If it is not, release clip on pointer and set to correct mark.
5 "	"	1500KC	"	"	Across voice coil	A7	Note position of pointer. If it is not more than 20KC from 1500KC mark, adjust A7 for maximum output. If it is more than 20KC off omit next step and proceed with Step 7.
6 "	"	600KC	"	"	"	A8	Adjust for maximum output. Try to increase output by detuning A8 and retuning receiver until maximum output is obtained. Repeat Steps 5 & 6 until no further increase can be obtained. This completes BC band alignment. The following steps under "Slug Tuner Adjustments" should be made only where conditions described previously were encountered.

AM SLUG TUNER ADJUSTMENTS

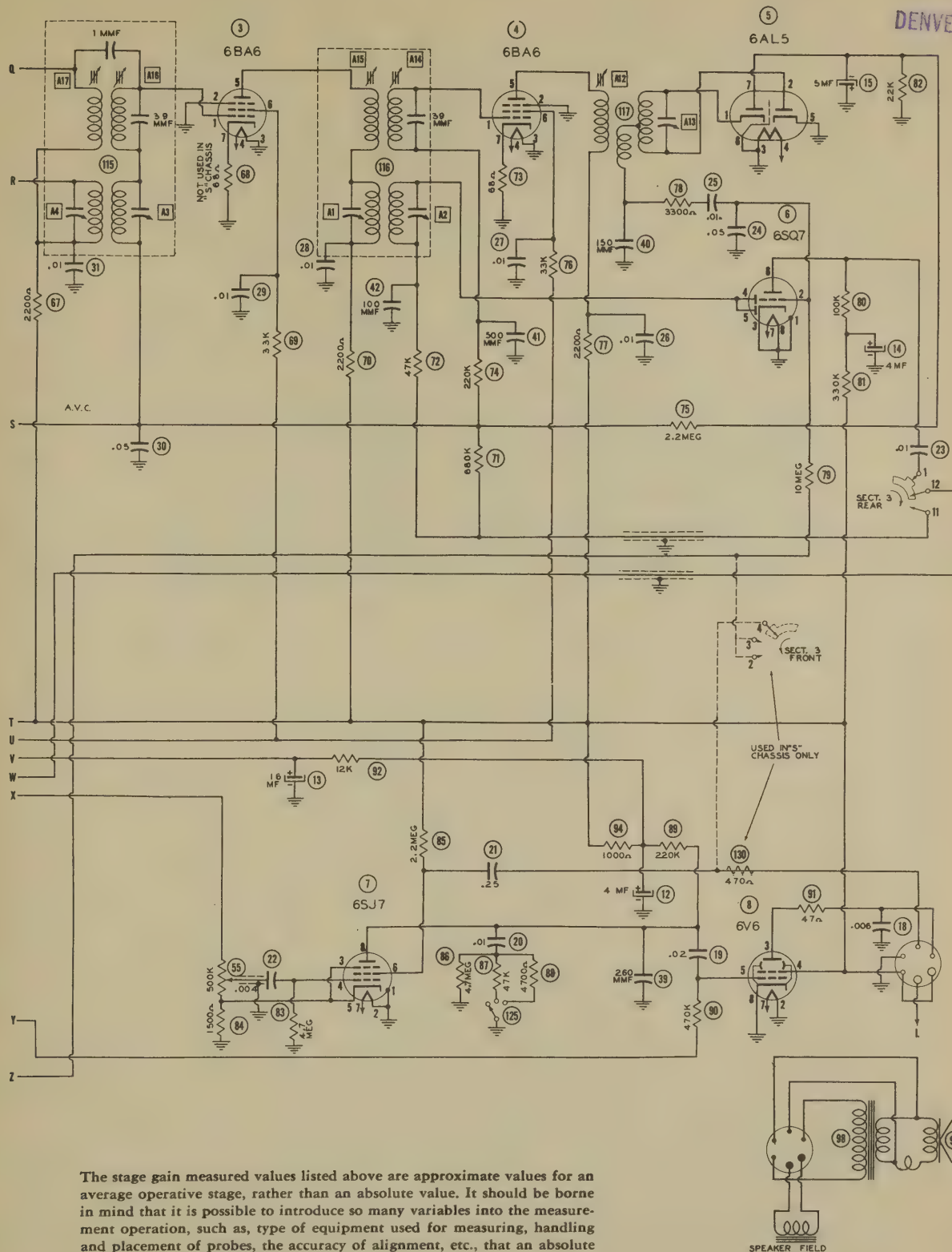
This procedure is to be used only where the positions of slugs in the slug tuner have been disturbed or in event of a coil or slug replacement, or where a serious calibration or tracking error is noted after attempting to align the receiver as described in the preceding section.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
7 500MMF Mica.	Connect to coupling turn on loop.	535KC	BC	Set slug tuner fully closed.	Across voice coil	A9	Back out A6 to minimum capacity. Rotate A9 and note whether peak can be obtained. If not, tighten A6 slightly and adjust A9 for maximum. Always rotate A9 so that core is moving down. The purpose of this adjustment is to resonate coil and capacitor at the lowest capacity position of A6.
8 "	"	1500KC	"	1500KC	"	A6	Adjust for maximum output.
9 "	"	535KC	"	Set slug tuner fully closed.	"	A10	Adjust for maximum output. Repeat Steps 8 and 9 until both points are correctly calibrated.
10 "	"	1500KC	"	Tune for maximum output.	"	A7	Adjust for maximum output.
11 "	"	1000KC	"	"	"	A11	" " " "
12 "	"	600KC	"	"	"	A8	Adjust for maximum output. Try to increase output by detuning A8 and retuning receiver until maximum output is obtained. Repeat Steps 10, 11 & 12 until no further improvement can be made. Apply speaker cement to top of each AM tuning slug.

Remove the metal shield in the vicinity of the IF stages used on some sets. Dress FM circuit leads as short and straight as possible, particularly in the oscillator circuit. IF plate and grid leads should also be kept short and straight.

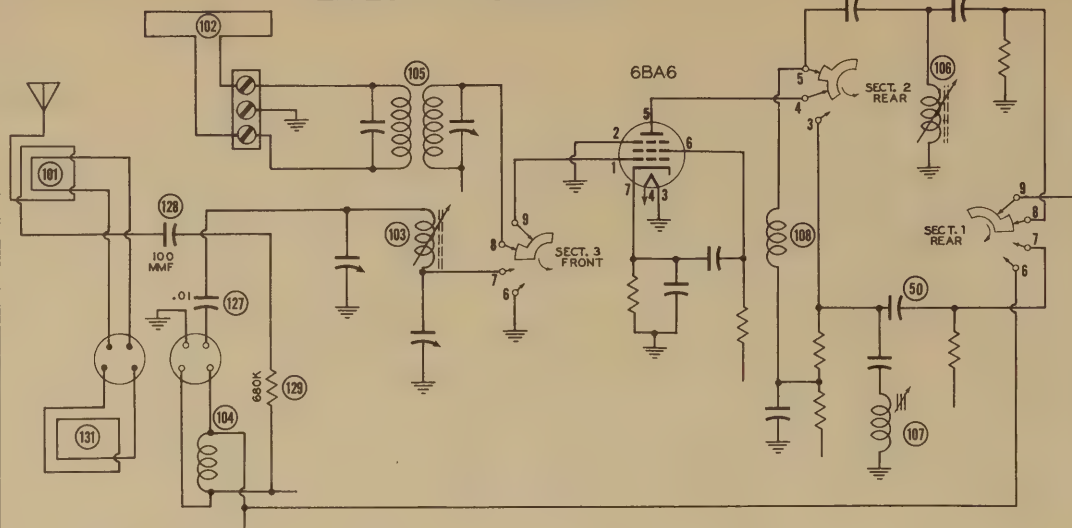
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CIRCLED NUMBERS CORRESPOND TO
"A" ADJUSTMENT NUMBERS IN THE
ALIGNMENT PROCEDURE.



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. A.V.C. is made inoperative and 3-volt battery bias substituted for measurement.

SERIES "S" CHASSIS



A PHOTOFAC STANDARD NOTATION SCHEMATIC
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4719-26

VOLTAGE AND RESISTANCE READINGS ON "S" SERIES HAVE FOLLOWING EXCEPTIONS:

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	-1.1VDC	OV.	OV.	6.1VAC	200VDC	135VDC	.9VDC	-
3	6BA6	-.9VDC	OV.	OV.	6.1VAC	245VDC	120VDC	OV.	-
7	6SJ7	OV.	OV.	.4VDC	OV.	.4VDC	20VDC	6.1VAC	135VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	2 Meg.	0Ω	0Ω	.1Ω	65KΩ	95KΩ	70Ω	-
3	6BA6	850KΩ	0Ω	0Ω	.1Ω	60KΩ	95KΩ	0Ω	-
7	6SJ7	0Ω	0Ω	1000Ω	5 Meg.	1000Ω	2.2 Meg.	.1Ω	280KΩ

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	-1.4VDC	OV.	OV.	6.1VAC	170VDC	135VDC	.8VDC	-
2	6SB7-Y	OV.	OV.	260VDC	105VDC	-10VDC§	OV.	6.1VAC	-1.6VDC
3	6BA6	-.8VDC	OV.	OV.	6.1VAC	245VDC	125VDC	1VDC	-
4	6BA6	-.6VDC	OV.	OV.	6.1VAC	245VDC	125VDC	.9VDC	-
5	6AL5	-.2VDC	-.2VDC	OV.	6.1VAC	OV.	OV.	-.4VDC	-
6	6SQ7	OV.	-.6VDC	OV.	-.7VDC	-.7VDC	105VDC	6.1VAC	OV.
7	6SJ7	OV.	OV.	.9VDC	OV.	.9VDC	23VDC	6.1VAC	145VDC
8	6V6GT	OV.	OV.	250VDC	260VDC	-5VDC	OV.	6.1VAC	OV.
9	5Y3GT	OV.	360VDC	330VDC	320VAC	260VDC	320VAC	OV.	360VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	1.3 Meg.	0Ω	0Ω	.1Ω	70KΩ	95KΩ	70Ω	-
2	6SB7-Y	0Ω	0Ω	60KΩ	70KΩ	22KΩ	1.5Ω	.2Ω	1.3 Meg.
3	6BA6	850KΩ	0Ω	0Ω	.1Ω	60KΩ	95KΩ	70Ω	-
4	6BA6	1 Meg.	0Ω	0Ω	.1Ω	60KΩ	95KΩ	70Ω	-
5	6AL5	INF.	INF.	0Ω	.1Ω	0Ω	0Ω	20KΩ	-
6	6SQ7	0Ω	10 Meg.	0Ω	540KΩ	540KΩ	500KΩ	.1Ω	0Ω
7	6SJ7	0Ω	0Ω	1.5KΩ	5 Meg.	1.5KΩ	2.2 Meg.	.1Ω	280KΩ
8	6V6GT	0Ω	0Ω	60KΩ	60KΩ	500KΩ	5 Meg.	.1Ω	0Ω
9	5Y3GT	INF.	60KΩ	72KΩ	210Ω	60KΩ	215Ω	INF.	60KΩ

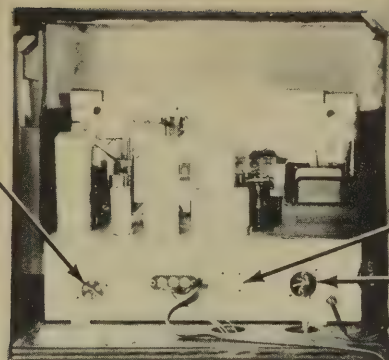
‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

§ TAKEN WITH VACUUM TUBE VOLTMETER.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

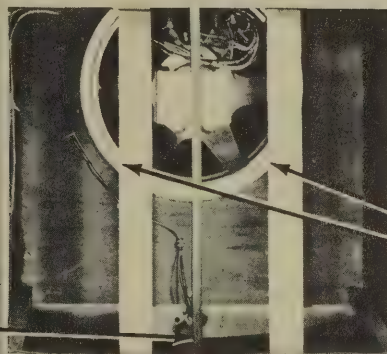
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PHONO
PICKUP
PLUG

LOOP ANT.
PLUG



SPEAKER
PLUG

FM ANT.
(102)



SPEAKER
MOUNTING
BOLTS

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove loop antenna plug from chassis.
3. Remove phono-pickup plug from chassis.
4. Remove speaker plug from chassis.
5. Remove FM antenna lead from terminal strip on chassis.
6. Remove loop primary lead from terminal strip on chassis.
7. Disconnect phono-motor plug.
8. Remove loop antenna from chassis.
9. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.
10. Remove one Phillips head screw and remove pilot light from cabinet.
11. Remove four hex head screws holding chassis in cabinet. Remove chassis from cabinet.

PUSHBUTTON ADJUSTMENTS

The ranges of the pushbuttons reading from left to right are as follows: 540-1000KC, 650-1300KC, 650-1300KC, 975-1600KC, 975-1600KC.

1. Turn receiver on and allow it to warm up for at least 15 minutes. Turn band switch to push-button position. (fully counter-clockwise).
2. Make a list of stations desired to be set up ranging from low frequency to high frequency stations making certain that each one falls within the range of the pushbutton to be set up.
3. Push first button from left (from front of chassis) in completely.
4. Adjust B1 to tune in desired station. Adjust B2 for maximum volume.
5. To set up the remaining buttons follow the same procedure outlined above adjusting B3, B5, B7 and B9 to tune in desired stations and B4, B6, B8 and B10 for maximum volume. Repeat adjustments for greater accuracy.

STEWART-WARNER MODELS A92CR3,
A92CR3S (Ch. 9028-C), A92CR6,
A92CR6S (Ch. 9028-F) PAGE 11

ALTERNATE FM ALIGNMENT INSTRUCTIONS

FM ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Before performing Step 14 connect two 68K Ω resistors (within 1% of each other) in series from pin #7 of the 6AL5 tube to chassis. The common VTVM lead is connected to the junction of these resistors.

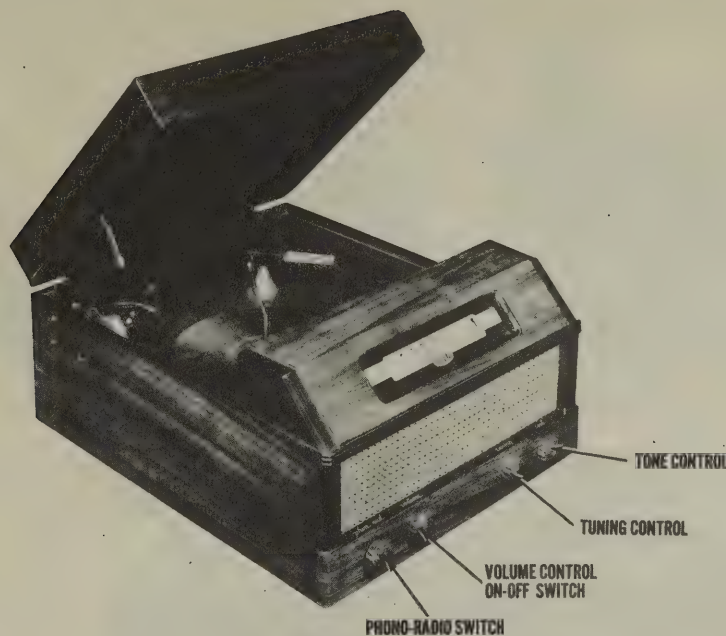
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
13 .01 MFD.	High side to Pin #1 of 6BA6 2nd IF Tube #4. Low side to chassis near same tube.	10.7MC (400 \sim mod.)	FM (clock-wise)	Any position where interfering signal is not received.	DC probe to Pin #7 of 6AL5. Common lead to chassis.	A12	Set VTVM to a low DC range. Adjust A12 for maximum reading (negative).
14 .01 MFD.	"	"	"	"	DC probe to junction of resistor #78 and cap. #91. Common to two 68K Ω resistors. (see pre-alignment instructions.)	A13	Set meter for lowest DC range. As A13 is rotated a point will be found where VTVM will swing sharply from a positive to a negative reading. Adjust A13 for zero voltage as A13 is moved through this point. Exercise extreme care in this adjustment. Remove the two 68K Ω resistors.
15 .01 MFD.	High side to Pin #1 of 6BA6 1st IF Tube #3. Low side to chassis near same tube.	"	"	"	DC probe to Pin #7 of 6AL5. Common to chassis.	A14,A15	Adjust for maximum meter reading.
16 .01 MFD.	High side to junction of A19 and FM RF Coil. Low side to chassis near tuner unit.	"	"	"	"	A16,A17	"
If position of FM tuner slugs have been disturbed or if coil or slug has been replaced omit Steps 17-19 inclusive and proceed with Step 20. If not, proceed with Step 17.							
17 120 Ω & 150 Ω carbon res.	High side to "A" terminal at rear of chassis in series with 120 Ω . Low side to other "A" terminal in series with 150 Ω .	98MC (400 \sim mod.)	FM (clock-wise)	98MC	DC probe to Pin 7 of 6AL5. Common to chassis.	A18	Adjust to receive 98MC signal and adjust for maximum reading.
18 "	"	"	"	"	"	A19	Adjust for maximum reading. Recheck A16 & A17 for maximum reading.
19 "	"	90MC (400 \sim mod.)	"	Tune for maximum reading.	"	A20	Adjust for maximum reading. Check calibration at 88MC and 108MC. If within .4MC alignment is satisfactory. If greater than .4MC perform Steps 20, 21 and 22.

FM SLUG TUNER ADJUSTMENT

This procedure is to be used only where the positions of slugs in the slug tuner have been disturbed or in event of a coil or slug replacement, or where a serious calibration or tracking error is noted after attempting to align the receiver as described in the preceding section.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
20 120 Ω & 150 Ω carbon res.	High side to "A" terminal at rear of chassis in series with 120 Ω . Low side to other "A" terminal in series with 150 Ω .	88MC (400 \sim mod.)	FM (clock-wise)	88MC	DC probe to Pin #7 of 6AL5. Common to chassis.	A18,A19,A20	Adjust A18 to receive 88MC signal. Adjust A19 & A20 for maximum reading.
21 "	"	98MC (400 \sim mod.)	"	98MC	"	A21	Adjust to receive 98MC signal and adjust for maximum reading.
22 "	"	108MC (400 \sim mod.)	"	108MC	"	A22	Adjust position of heavy braided lead connection to osc. coil for maximum reading. Coat lead with speaker cement. Adjust A22 for maximum reading. Repeat Steps 20, 21 and 22 until satisfactory calibration and tracking at 88, 98 and 108MC is obtained. Apply speaker cement to top of each FM tuning slug.

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TEMPLE MODEL G-518

TRADE NAME Temple, Model G-518
MANUFACTURER Templetone Radio Mfg. Corp., Garfield Ave., New London, Conn.
TYPE SET AC Operated Combination Phono-Radio Superheterodyne Receiver-Self Contained Loop Ant.
TUBES (FIVE) Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 110-120 Volts AC

TUNING RANGE—BROADCAST 532-1700KC

RATING

.230 Amps. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .01 MFD	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	Loop	1700KC	"	"	A5	Fashion loop of several turns of wire and radiate signal in to loop of receiver. Adjust for maximum output.
3	"	1550KC	Tune for maximum output.	"	A6	Adjust for maximum output.

DISASSEMBLY INSTRUCTIONS

1. Remove two screws from bottom of cabinet holding record changer in cabinet.
2. Remove phono-pickup plug from chassis.
3. Remove phono-motor plug from chassis.
4. Remove record changer from cabinet.
5. Remove four push-on type control knobs.
6. Remove two Phillips head wood screws holding panel in back of chassis. Remove panel from cabinet.
7. Remove three screws holding chassis in cabinet. Remove staples holding loop in cabinet. Remove chassis and loop from cabinet.

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"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
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DATE 12/47 SET #29 FOLDER #4719-27

PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW

TEMPLE MODEL
G-518

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TEMPLE PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp	12SK7GT	12SK7GT	8N	
3	Det. AVC-AF	12SC7GT	12SC7GT	8C	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		TEMPLE PART No.	REPLACEMENT DATA				CORNEILL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT.		MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.		
6A	80	150		FP357*	DY-804020-	TEL-340*	AF88D4*	UP84215	■ Filter
B	20	150			150		PRS-150-40		▲ Output Cathode Bypass
7	.01	600	TC26			Un-201		DT681	Output Plate Bypass
8	.005	600	TP410	S-6-01	S-6-01	TC-11	684-.01	DT681	Audio Coupling
9	.003	600	TP408	S-6-005	S-6-005	TC-25	684-.005	DT685	Tone Compensation
10	.003	600	TP406	S-6-003	S-6-003	TC-25	684-.003	DT683	■
11	.005	600	TP408	S-6-005	S-6-005	TC-25	684-.005	DT685	Audio Coupling
12	.1	400	TP428	S-4-1	S-4-1	TC-1	484-.1	DT491	ATC Filter
13	.05	400	TP426	S-4-05	S-4-05	TC-15	484-.05	DT485	RF Cathode Bypass
14	.01	600	TP410	S-6-01	S-6-01	TC-11	684-.01	DT681	RF Bypass Power Sup
15	.1	400	TP428	S-4-1	S-4-1	TC-1	484-.1	DT491	Phono Isolation
16	.1	600	TP418	MPH-6-1	MPH-6-1	TC-1	684-.1	DT691	Line Filter
17	.01	600	TP410	S-6-01	S-6-01	TC-11	684-.01	DT681	Ext. Ant. Isolation
18	100	500	TC235	NO.5-31	TPF-35	1PF-35	1468-.0001	SW5T1	AF Plate Bypass
19	100	500	TC235	NO.5-31	1PF-35	1468-.0001	1468-.0001	SW5T1	Osc. Grid Cap.
20	100	500	TC215	NO.5-41	YS-41	1468-.0001	1468-.0001	SW5Q1	Fed Trimmer-See N

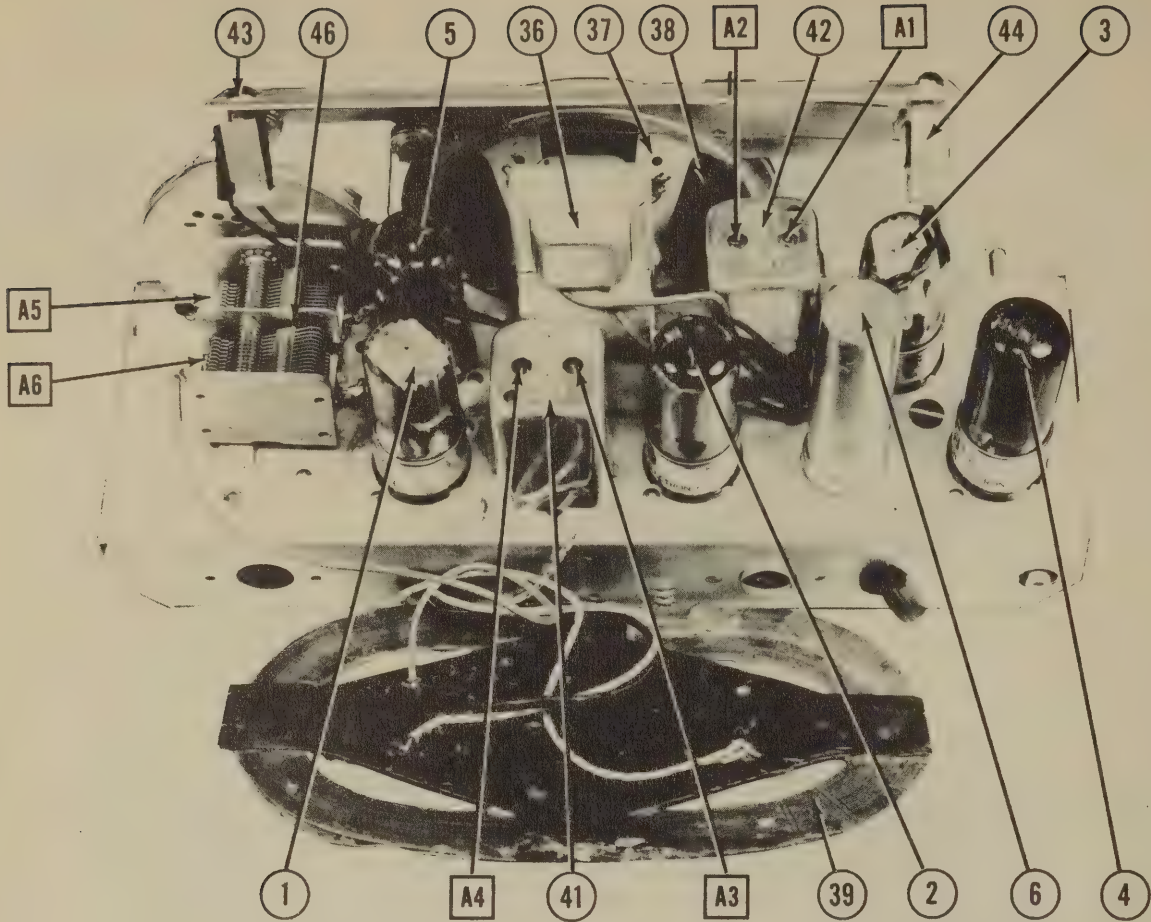
*Parallel sections to obtain desired capacity.
Note 1-Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TEMPLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
21A	500KΩ	RP5-2A	TY230	D13-133X	AT-92	Volume Control & Sw.
B	Switch	Not Req.	SS25	E	KSS-3	Attach to 22A per instructions
22A	500KΩ	RP6-504B	TK401	D13-133	SW-A	Tone Control
B	Shart	Not Req.	Not Req.	E	AK-60-Z	Attach to 22A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		TEMPLE PART No.	IRC PART No.	
23	22KΩ			Red-Red-Or. Oscillator Grid
24	2.2 Meg.			Red-Red-Grn. AVC Network
25	3.9 Meg.			Or.-White-Grn. AF Grid
26	33KΩ			Or.-Or.-Or. Tone Compensation
27	330KΩ			Or.-Or.-Vl. AF Plate Load
28	470KΩ			Vl.-Vl.-Vl. Output Grid
29	47KΩ			Vl.-Vl.-Blk. Output Cathode
30	100Ω			Br.-Blk.-Br. Output Cathode
31	1000Ω			Gray-Red-Vl. Series Shunt
32	470KΩ			Br.-Blk.-Br. Surge Limiter
33	820KΩ			Br.-Grn.-Br. Pilot Light Shunt
34	100Ω			
35	150Ω			



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	TEMPLE PART No.	MERIT PART No.	
36	2100Ω	3.3Ω	150Ω	A-29281	Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	TEMPLE PART No.	JENSEN PART No.	
37	PM	3.3Ω	EH-19	ST-105	
38	CONE DIA.	VC DIA.	1 1/2"	Mod. P5-X	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

R F COILS

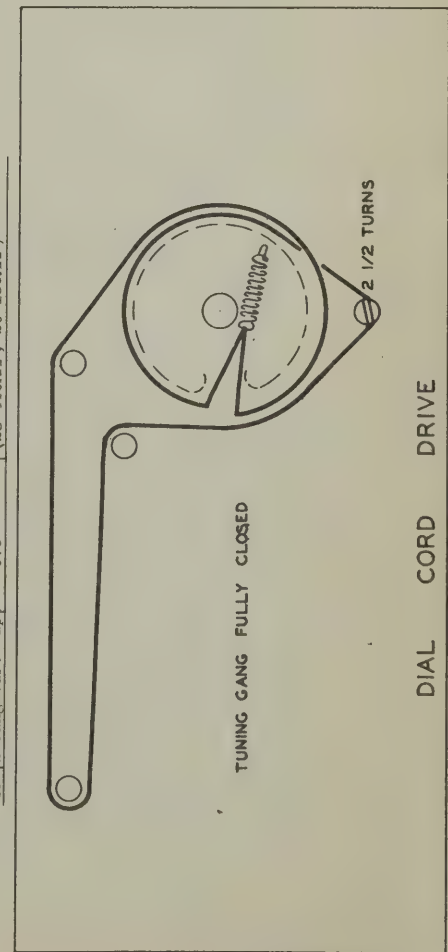
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	TEMPLE PART No.	WEISSNER PART No.
39	Loop Ant.	.2Ω	1.5Ω	L17	
40	Osc. Coil	6.8Ω	1.0Ω	L02	14-1040
41	Input IF	16Ω	16Ω	TV2-10	16-6658
42	Output IF	16Ω	16Ω	TV2-11	16-6670

DIAL LIGHT

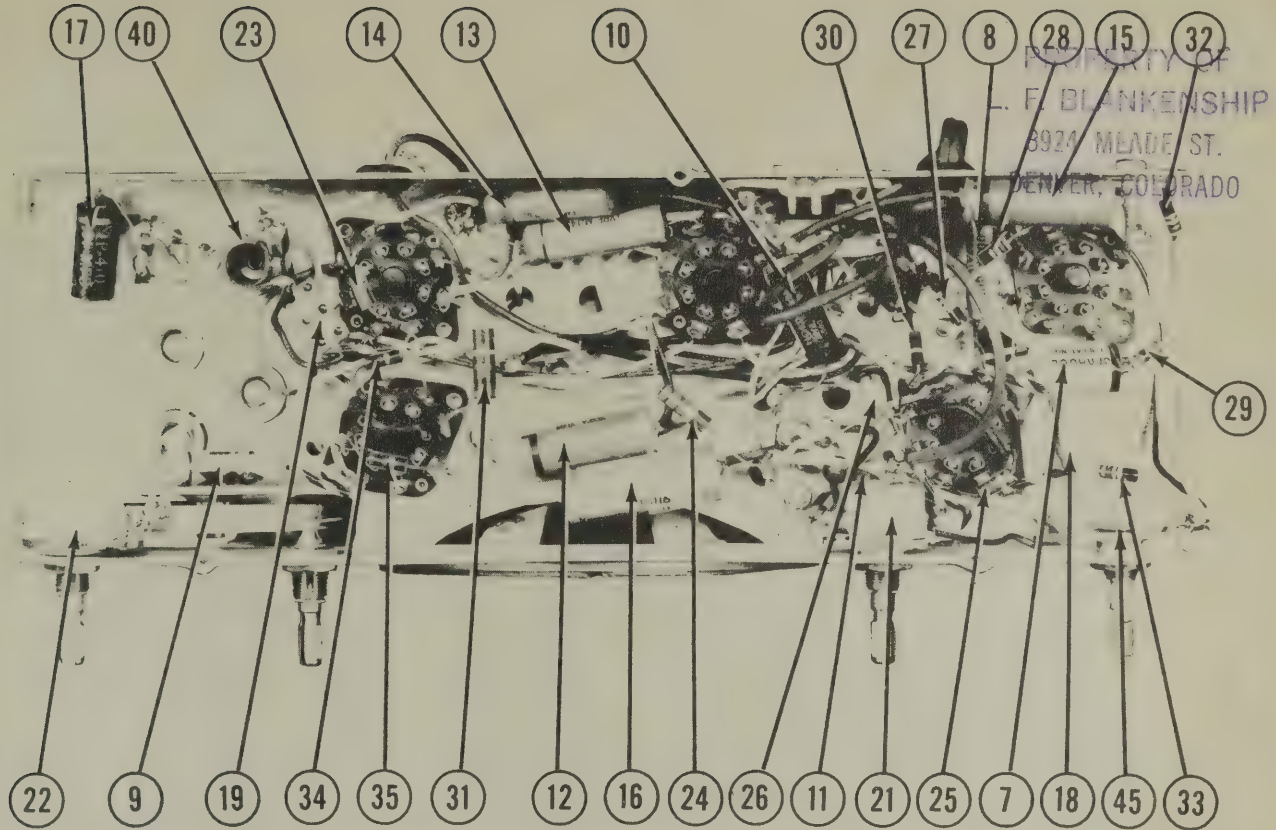
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	TEMPLE PART No.	
43	Bayonet	2.9"	.17"	White		Type 281

MISCELLANEOUS

ITEM No.	PART NAME	TEMPLE PART No.	NOTES
45	Switch	SR13	Radio-Phono
46	2 Gang Var. Cap	CV6	(23-440MM, 20-186MTF)



CHASSIS—BOTTOM VIEW





Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	OV.	12VAC	75VDC	75VDC	-7.6VDC	OV.	25VAC	-6VDC
2	12SK7GT	OV.	25VAC	-6VDC	-6VDC	OV.	75VDC	39VAC	75VDC
3	12SQ7GT	OV.	-1VDC	OV.	OV.	-5VDC	55VDC	12VAC	4VDC
4	50L6GT	3VDC	85VAC	90VDC	OV.	OV.	OV.	39VAC	4VDC
5	35Z5GT	100VDC	117VAC	113VAC	75VDC	113VAC	100VDC	75VAC	105VDC

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	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
	1	12SA7GT	02	132	50K2	30K2	22K2	.72	272	3 Meg.
	2	12SK7GT	02	272	3 Meg.	3 Meg.	02	30K2	402	30K2
	3	12SQ7GT	02	4 Meg.	02	02	50K2	350K2	132	02
	4	50L6GT	1002	902	30K2	30K2	50K2	INF.	402	1402
	5	35Z5GT	30K2	1202	1152	30K2	1152	30K2	02	30K2

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4719-27

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Leontine Adams

• TRADE MARK

PHOTOFACT* FOLDER SET No. 26

★ ★ ★ CONTENTS ★ ★ ★

TRADE NAME	MODEL	FOLDER NO.	TRADE NAME	MODEL	FOLDER NO.
Admiral.....	7P32, 7P33, 7P34, (Ch. 5H1).....	4716-1	Gifflian.....	86 Series.....	4716-16
Admiral.....	7RT41, 7RT42, 7RT43 (Ch. 6L1).....	4716-2	Majestic.....	7P420 (Ch. 4705).....	4716-17
Admiral.....	Record Changer RC-150.....	4716-31	Masco.....	MA-808.....	4716-18
Air King.....	A-600.....	4716-3	Masco.....	MAP-15.....	4716-19
Airline.....	74WG-2002A.....	4716-4	Philco.....	48-464.....	4716-20
Airline.....	74WG-2709A.....	4716-5	Puritan.....	509.....	4716-21
Audar.....	MAS-4.....	4716-6	Radionic.....	Y62W, Y728.....	4716-22
Automatic.....	Tom Thumb Jr.....	4716-7	Regal Electronics.....	205.....	4716-23
Bendix.....	697A.....	4716-8	Silvertone.....	Record Changer 771.....	4716-32
David Bogen.....	GO-50.....	4716-9	Silvertone.....	7153 (Ch. 109,627).....	4716-30
Dewald.....	A-507.....	4716-10	Sound Inc.....	MB7E8.....	4716-24
Emerson.....	512, 515, 516, 550 (Ch. 120056).....	4716-11	Temple.....	G-418, G-419.....	4716-25
Emerson.....	549 (Ch. 120051).....	4716-12	Temple.....	G-522.....	4716-26
Farnsworth.....	EK-081 (Ch. C-156), EK-082 (Ch. C-157), EK-083 (Ch. C-193), EK-681 (Ch. C-156).....	4716-13	Truetone.....	D2748 (Ch. 7156).....	4716-27
Plush Wall.....	5P.....	4716-14	U. S. Television (Dunbarton).....	8-16M.....	4716-29
Gen. Television.....	2585.....	4716-15	VM.....	Record Changer 400.....	4716-33

\$150

NET

IN THIS ENVELOPE: Complete Service Information on Admiral Model RC-150, Silvertone Model 771 and V-M Model 400 Record Changers

PUBLISHED BY HOWARD W. SAMS & CO., INC., 2924 EAST WASHINGTON STREET, INDIANAPOLIS 6, INDIANA
 EXPORT: AD. AURIEMA, 89 BROAD STREET, NEW YORK 4, N. Y., U. S. A.

ENVELOPE AND CONTENTS PRINTED IN U.S.A.

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Flush Wall.....	5P.....	4716-14	U. S. Television (Dumbarton).....	8-16M.....	4716-29
Gen. Television.....	25B5.....	4716-15	VM.....	Record Changer 400.....	4716-33
Giffillan.....	86 Series.....	4716-16			

The PHOTOFACT Servicer

OCTOBER 1, 1947



Published for all users of Howard W. Sams' Photofact Folders



VOL. 3, No. 26

ROBERT M. ELLIS, Editor

PARTICIPATING MANUFACTURERS

The other day, one of the many service technicians who has visited us said, "You should tell the story of the participating manufacturers in the 'SERVICER.' I believe it would interest every subscriber of PHOTOFACT Folders." We will try to do this—although unfortunately, it will seem less dramatic than if you could go in person from station to station on the "disassembly" line where the data for PHOTOFACT Folders is obtained.

Every service technician should know that of all technical information sources, the PHOTOFACT system alone obtains information directly from sample receivers. This unique system provides the *only sure method* of obtaining accurate listings of replacement parts, since available space as well as detailed mechanical and electrical specifications can be obtained with complete accuracy. If a shadow of doubt exists on the efficiency of any replacement part in any application, a test is made by actually trying the part in the set. It should also be noted that the actual replacement listings are not made by us, but are made by the engineers of the participating manufacturers.

It will instantly be apparent that here is a method of operation that is new and radically different from the customary "cut and paste-up" procedure usually associated with service compilation work. The method results from the vision of one man, Howard Sams, who with over thirty years association with the radio industry, sought a way to bring service engineers vitally needed repair data in an accurate, complete but condensed form so that repairs could be accomplished quicker, easier, and more satisfactorily.

As a sales executive, Mr. Sams had occasion over a number of years to observe and to direct the issuance of a variety of replacement manuals, and was acquainted with the almost insurmountable problems in this work. In the past, information for making replacement recommendations has been obtained in almost every instance by examining the schematics and parts list of factory service manuals or in reprinted compilations of them. Seldom was the manufacturer's blueprint available on the replacement part; the actual examination of the receiver for which a part was intended was virtually unknown. Mr. Sams reasoned—"If we could only work from the actual sets, we could achieve perfect accuracy. But more—we could originate standardized instruction sheets that would lop off hours of work per week for every professional repairman." Hundreds of service technicians were contacted, and their enthusiastic reception left no doubt that the idea would receive complete support by the servicing fraternity.

It was realized at the outset that the cost of this type of operation would be high because it would involve the direct handling of a physical sample of every receiver as it was placed on the market. Simple arithmetic showed that it was not "in the cards" to provide this new service, now called "PHOTOFACT Folders," on the basis of the direct returns from their sale. Accordingly the idea was broached to a number of progressive replacement parts manufacturers who had shown indications of having the interests of the service profession at heart; and their response was both instant and spontaneously enthusiastic. These concerns, whose names appear in PHOTOFACT Folders, are worthy of the support and respect of every service technician. Before an issue was ever printed, these concerns committed themselves financially *on confidence alone*, believing that PHOTOFACT Folder service would benefit you—that it would solve fundamental problems of an industry. The supporting or participating manufacturers are your friends—they are proving it with cash—not idle words. We think it is only fair to ask you to support them with your purchases.

You will be interested in the method we use for transmitting information to these participating manufacturers. To provide the maximum of clarity, standardized forms have been prepared for each product. All of these forms are reproduced in reduced size. These specimens show how complete, verified details are available to a participant manufacturer so that a PHOTOFACT replacement listing becomes a dependable fact rather than an optimistic hope.

Participating Manufacturers Are

PRODUCT	MANUFACTURER'S NAME
Batteries	Eveready (National Carbon Co.)
Capacitors	Aerovox
	Cornell-Dubilier
	Mallory
	Solar
	Sprague
Controls	Clarostat
	IRC
	Mallory
Resistors	IRC
R.F. Coils	Meissner
Speakers	Jensen
Transformers and Chokes.....	Merit
	Stancor
	Thordarson
Tubes	Sylvania
Phono Pickups and Cartridges....	Astatic
Vibrators	Mallory
	Radiart

A few manufacturers have expressed interest in participating in our program but have refrained from doing so until their individual circumstances would permit them to join us. If there are any manufacturers whose products you would like to see covered by PHOTOFACT Folders, you can help. Write and tell them that you find PHOTOFACT Folders valuable in your work, and that you would like to see their products listed in PHOTOFACT Folders. The more participating manufacturers that join our group, the more valuable we can make the PHOTOFACT Service.

Every engineer in the PHOTOFACT "Disassembly" line is a Specialist. The details are too complicated, and the standards of accuracy are too high to allow any "jack of all trades" operation. There is the unpacking man, who handles the incoming shipments, the disassembly expert who takes sets apart (and puts 'em back together again) who gives the special disassembly instructions when required. Then the sets travel to the alignment station where precision alignment is given prior to the taking of stage gain measurements, then to the measurements man who specializes in voltage and resistance measurements. Then the receiver chassis move to the product men who carry on all details of the replacement listings.

Depend on PHOTOFACT listings when you purchase replacement parts—to do so will save time and effort for you; and will insure customer satisfaction.

★ ★

FIELD EXPERIENCES

Here is your opportunity for passing practical service experiences to others for the benefit of all. For every service "Field Experience" published, we issue to the author a certificate that is good for one PHOTOFACT Folder Set. Since it is impossible to verify the accuracy of contributions, we cannot be responsible for either the diagnosis made of the receiver trouble, or the results which will be obtained by following the suggested repair routine. All contributions become the property of Howard W. Sams & Co., Inc.

Continued on page 4

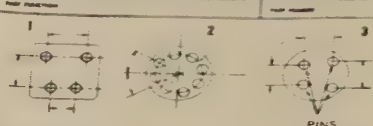
FROM: HOWARD W. SAMS & CO., INC.
2924 East Washington Street
Indianapolis 6, Indiana

ISSUED BY: HOWARD W. SAMS & CO., INC.


TO: _____

ATTENTION: _____

PART FUNCTION: _____



PINS



SKETCH OF SPACE FOR BATTERY IN _____

RATING (NO SIGNAL)	
1A	1B
VOLTAGE	CURRENT
VOLTAGE	CURRENT
VOLTAGE	CURRENT
VOLTAGE	CURRENT

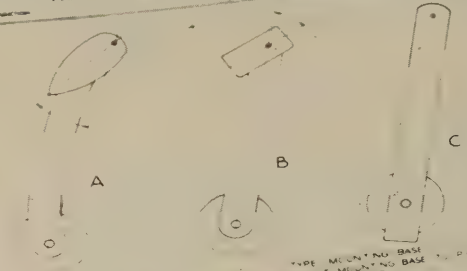
FROM: HOWARD W. SAMS & CO., INC.
2924 East Washington Street
Indianapolis 6, Indiana

ISSUED BY: HOWARD W. SAMS & CO., INC.

TO: _____

ATTENTION: _____

PART FUNCTION: _____



TYPE MOUNTING BASE
HEIGHT MOUNTING BASE
VERTICAL PIVOT

TYPE CENTER TO NEEDLE
PUSH CENTER TO VARIABLE CENTER

RECOMMENDATION OR APPROVAL MUST BE FORWARDED WITHIN 10 DAYS OF ABOVE ISSUE DATE.


FROM: HOWARD W. SAMS & CO., INC.
2924 East Washington Street
Indianapolis 6, Indiana

ISSUED BY: HOWARD W. SAMS & CO., INC.

TO: _____

ATTENTION: _____

PART FUNCTION: _____



REPLACEMENT RECOMMENDATIONS

REPLACEMENT	RECOMMENDATION
1	
2	
3	
4	
5	

FROM: HOWARD W. SAMS & CO., INC.
2924 East Washington Street
Indianapolis 6, Indiana

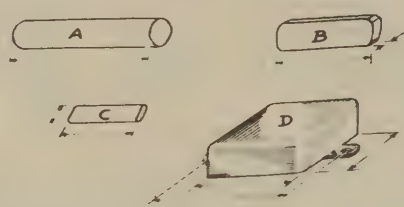
ISSUED BY: HOWARD W. SAMS & CO., INC.

TO: _____

ATTENTION: _____

PART FUNCTION: _____

RECOMMENDATION OR APPROVAL MUST BE FORWARDED WITHIN 10 DAYS OF ABOVE ISSUE DATE.



RECOMMENDATION OR APPROVAL MUST BE FORWARDED WITHIN 10 DAYS OF ABOVE ISSUE DATE.

FROM: HOWARD W. SAMS & CO., INC.
2924 East Washington Street
Indianapolis 6, Indiana

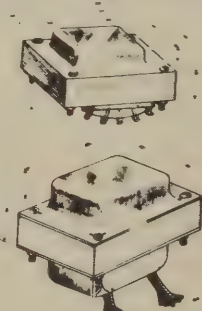
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TO: _____

ATTENTION: _____

PART FUNCTION: _____

RECOMMENDATION OR APPROVAL MUST BE FORWARDED WITHIN 10 DAYS OF ABOVE ISSUE DATE.



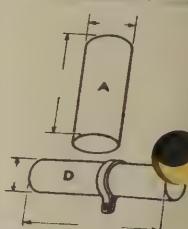
FROM: HOWARD W. SAMS & CO., INC.
2924 East Washington Street
Indianapolis 6, Indiana

ISSUED BY: HOWARD W. SAMS & CO., INC.

TO: _____

ATTENTION: _____

PART FUNCTION: _____



RECOMMENDATION OR APPROVAL MUST BE FORWARDED WITHIN 10 DAYS OF ABOVE ISSUE DATE.

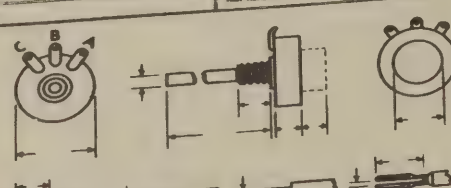
FROM: HOWARD W. SAMS & CO., INC.
2924 East Washington Street
Indianapolis 6, Indiana

ISSUED BY: HOWARD W. SAMS & CO., INC.

TO: _____

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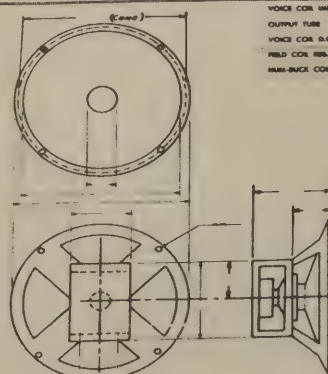
FROM: HOWARD W. SAMS & CO., INC.
2924 East Washington Street
Indianapolis 6, Indiana

ISSUED BY: HOWARD W. SAMS & CO., INC.

TO: _____

ATTENTION: _____

PART FUNCTION: _____



RECOMMENDATION OR APPROVAL MUST BE FORWARDED WITHIN 10 DAYS OF ABOVE ISSUE DATE.

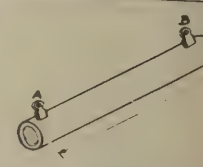
FROM: HOWARD W. SAMS & CO., INC.
2924 East Washington Street
Indianapolis 6, Indiana

ISSUED BY: HOWARD W. SAMS & CO., INC.

TO: _____

ATTENTION: _____

PART FUNCTION: _____



RECOMMENDATION OR APPROVAL MUST BE FORWARDED WITHIN 10 DAYS OF ABOVE ISSUE DATE.

<p>HOWARD W. SAMS & CO., INC. 7724 East Washington Street Indianapolis 6, Indiana</p> <p>TO: _____</p> <p>ATTENTION: _____</p> <p>PART NUMBER: _____</p>	<p>REQUIRD By HOWARD W. <small>COMPONENT</small></p> <p><small>RECOMMENDATION</small></p> <p><small>RECOMMENDATION</small></p> <p><small>RECOMMENDATION</small></p> <p><small>RECOMMENDATION</small></p> <p><small>RECOMMENDATION</small></p>	<p>FROM: HOWARD W. SAMS & CO., INC. 7724 E. WASHINGTON ST. INDIANAPOLIS 6, INDIANA</p> <p>TO: _____</p> <p>DATE: _____</p> <p>TRADE NAME: _____</p> <p>FIG. NO.: _____</p> <p>ISSUE DATE (NWS & CO.): _____</p> <p>RECOMMENDATION OR PART MUST BE FORWARDED 10 DAYS OF 40078 ISSUE</p>
---	---	---

1

2

3

4

5

6

7

8

9

10

TERM

STYLE

ORIG.

MFG.

KEYING

TWO SIGNALS

VOLTAGE

CORRECTION

REPLACEMENT RECOMMENDATION

REPLACEMENT RECOMMENDED BY

RE

FROM: HOWARD W. SAMS & CO., INC.
2924 East Washington Street
Indianapolis 6, Indiana

TO: _____

ATTENTION: _____

PLANT NUMBER: _____

ISSUED
By HOWARD W. SAMS & CO. INC. Rev. _____

DISCONTINUATION OF SUPPLY. PART NO. 900
REPLACEMENT NUMBER 100-5475 OF THE ABOVE DATE

REV. SYMBOL
REPLACEMENT NUMBER

PLANT NUMBER

MODEL NUMBER

PLANT NUMBER

A detailed line drawing of a rectangular chassis. It features a central rectangular cutout. Four mounting tabs are shown: two on the top edge and two on the bottom edge. Dimension lines with arrows indicate various measurements: overall width, overall height, cutout width, and cutout height. A dashed line on the bottom indicates the mounting base.

Diagram A shows the front view of the chassis with a component (likely a transformer or filter) installed in the central cutout. The component has a rectangular shape with a label area.

A

Diagram B shows the side view of the chassis, highlighting the two mounting tabs on the bottom edge. The central cutout is visible from the side.

B

Diagram D shows the top view of the chassis, highlighting the two mounting tabs on the top edge. The central cutout is visible from above.

D

Diagram C shows the front view of the chassis with a component installed, similar to Diagram A but with more detailed shading to indicate the component's form and the chassis's structure.

C

OUTPUT TUBE
PLATE CURRENT
PRIMARY SECONDARY

INTERFERENCE
DC BIAS
TYPE MOUNTING A B C D
ABOVE CHASSIS
BELOW CHASSIS VERTICAL HORIZONTAL
ON SPREADER PLANS
ON SPREADER MAGNET PLANS

MPGR

REPLACEMENT RECOMMENDATIONS
RECOMMENDED BY _____

REPLACEMENT

ISSUED
By HOWARD W. SAAS & CO., INC.
RECOMMENDATION OR APPROVAL MUST BE FORWARDED WITHIN TEN DAYS OF THE ABOVE DATE

RECEIVED
MANUFACTURED

TRADE NAME
JESSE HANSEN
PART NUMBER

FROM: HOWARD W. SAAS & CO., INC.
2924 East Washington Street
Indianapolis 6, Indiana

TO:

ATTENTION:

NAME FUNCTION

ISSUED
By HOWARD W. SAAS & CO., INC.
RECOMMENDATION OR APPROVAL MUST BE FORWARDED WITHIN TEN DAYS OF THE ABOVE DATE

RECEIVED
MANUFACTURED

TRADE NAME
HOBBS HANSEN
PART NUMBER

REFERENCE FIG
NEEDLE ANGLE

REFERENCE FIG
NEEDLE ANGLE

OM HOWARD W SAMS & CO., INC. / 2924 East Washington Street Indianapolis 6, Indiana	ISSUED _____ By HOWARD W SAMS & CO., INC. [Signature] Date _____ RECOMMENDATION OF APPROVAL MAY BE FOR- WARDER WITHIN TEN DAYS OF THE ABOVE DATE
PART NUMBER _____ ATTENTION: _____ PART FUNCTION _____	SPECIFIC MANUFACTURING TOLERANCE _____ TOLERANCE RANGE _____ MODIFY NUMBER _____ FLAT TOLERANCE _____

CORE MATERIAL <input type="checkbox"/> GOM <input type="checkbox"/> AIR	FREQUENCY GUIDE	
TYPING MOUNTING <input type="checkbox"/> BRACKET <input type="checkbox"/> SPARE BOLTS <input type="checkbox"/> CLIP <input type="checkbox"/> BIVETS <input type="checkbox"/> GLUE <input type="checkbox"/> STUD BOLTS	TYPING TURNING <input type="checkbox"/> SLUG <input type="checkbox"/> CRAMIC <input type="checkbox"/> INCA <input type="checkbox"/> PLASTIC <input type="checkbox"/> CAPTATOR	
PRIMARY	SECONDARY	SECONDARY

PERFORMANCE
 DC RESISTANCE
 TURNS
 *APS
 CONNECTIONS

ISSUE DATE (HWS + CO.) RECOMMENDATION OR APPROVAL MUST BE FORWARDED WITHIN 10 DAYS OF ABOVE ISSUE DATE.		Date: HOWARD W. SAMS & CO., INC. 7924 East Washington Street Indianapolis 8, Indiana		ISSUED By HOWARD W. SAMS & CO., INC.	
MODEL NO. PART NO.		ATTENTION:		RECEIVED MANUFACTURED TRADE MARK ORDER NUMBER QUANTITY	
WHAT IS _____ W _____		TYPE NORMAL OPERATING VOLTAGE FREQUENCY CON. RESISTANCE		SYNC. INT. CYCLES OHMS	
RECOMMENDATIONS RE SAMS		REPLACEMENT RECOMMENDATIONS REPLACEMENT		REPLACEMENT	

[illegible]

ADMIRAL 10A1**Photofact Set No. 3—463-30**

"Complaint: Static starting only after the set heats up.

"The trouble was found to be in a defective screen dropping resistor, PHOTOFAC T Part 51, manufacturers Part No. 61A1-3, 10,000 ohms 5-watt. This part caused trouble in several sets."

Submitted by: Mr. V. L. Day, Day's Home Radio Service, 2103 Adoue Street, Alvin, Texas.

★ ★

CHRYSLER (MoPar) No. 600

"If the Chrysler Motor Company radio MoPar No. 600 should fail to align properly and you find it impossible to make the oscillator track, check the value of the .00035 mfd. temperature compensated condenser (ceramic) in the oscillator circuit. It may lose capacity with age and you will probably find that it measures considerably less than its rated value."

PHILCOPHONE 901 and 902

"When oscillation develops in the model 901 and 902 Philcophone intercom system and fails to respond to any of the usual remedies change the dual cathode filter block. I have found that even though all condensers test o.k. there is often enough coupling between sections of the block to cause feedback and oscillation. It is better to replace the block with two separate condensers."

Submitted by: Reid B. Thatcher, Reid's Radio Service, Route 5, Nampa, Idaho.

★ ★

TEMPLE F611**Photofact Set No. 9—469-32**

"Complaint: Set plays on battery—dead on a.c.

"Check the 15 ohm resistor in the cathode circuit of the 117Z6, (Photofact Item 35). This has been opening up."

Submitted by: Mr. Hoppe, Service Manager, Vogue Distributing Co., 1916 North Meridian Street, Indianapolis, Indiana.

★ ★

HOWARD MODEL 920**Photofact Set No. 5—465-7**

"A number of these sets have come in with a distortion that sounded like a leaking audio coupling condenser, but in each case it has proved to be the screen grid resistor to the 1S5, (Photofact Item 27). This is a 3.3 meg. resistor and changes its value to 10 and 15 meg. Replacing with a good quality resistor is the cure."

GENERAL ELECTRIC 180**Photofact Set No. 20—4710-11**

"Complaint: Dial string slipping when there seems to be plenty tension on it.

"This is caused by the dial string drum binding in its bushing—the one that is fastened to the dial face and not the drum on the tuning condenser. The cure is to remove this assembly and oil the bushing and work it by hand until it turns freely. The R.F. section of this set usually requires realigning."

Submitted by: Mr. Roy L. Mott, Service Manager, DeLoach Specialty Co., Thomasville, Alabama.

★ ★

GAROD 5D-2**Photofact Set No. 12—472-12**

"Complaint: The set is intermittent, all tubes check good and voltages check o.k.

"The loop antenna of this set is in the front door of the set, and the hinges act as conductors through the front plate to the inner part of case. The front plate of the set is metal and has two gaps in the top edge to clear the hinges. However, this plate will shift about and short to the hinges and cause the above condition. The remedy is obvious; reset the plate so that it has sufficient clearance from the hinges."

Submitted by: Mr. E. J. Barnett, Jr., Lektro-Mecs, 4940 Newport Ave. (Ocean Beach), San Diego 7, California.

PHILCO 46-1201**Photofact Set No. 4—464-35**

"Complaint: Dead over entire band.

"The top soldering lug on the oscillator section of the gang condenser was found to be shorting to the frame of the condenser. This condition was found in two sets. Bend the lug until clear."

Submitted by: Mr. G. G. Crose, 102 N. Clifton, Park Ridge, Illinois.

★ ★

UTAH RECORD CHANGER 550**Photofact Set 8**

"Complaint: The last record falls down on the tone arm.

"Remedy: The toggle plate spring (Photofact Item 13), is too weak. Remove, tighten and replace, and you will find that the changer will work o.k."

Submitted by: Henry E. Nordstrom, Oakhurst Radio Repair, Elma, Washington.

★ ★

FORD 6MF080**Photofact Set No. 10—4610-18**

"Complaint: Intermittent operation.

"The grid lead of the 7B8 converter is clamped under the bracket holding the trimmer (Photofact A6) to the chassis. This clamp had broken the insulation on the grid lead wire at a point about 3/4" from the trimmer, and was shorting the grid to the chassis."

Submitted by: Mr. C. V. Miller, Miller Radio Service, Crossett, Arkansas.

★ ★

BENDIX 646A**Photofact Set No. 2—462-28**

"Complaint: R.F. Oscillation, broad tuning, will not align.

"The tuning condenser was found to be grounded to the chassis which shorted the a.v.c. system. The trouble was in the rubber grommet on the tuning condenser."

Submitted by: Mr. R. LaFontaine, 904 Chestnut Street, Alameda, California.

★ ★

STEWART-WARNER MUSIDORA A92CR6**Photofact Folder No. 4716-25**

"When the receiver plays on FM and records, but is dead on AM, check the staple holding the leads on the loop. It may be shorting them."

Submitted by: Mr. Tom B. McCarthy, McCarthy's Radio Sales & Service, 147 East Main Street, Luray, Virginia.

★ ★

SERVICE SUGGESTIONS

"A clothespin is handy to hold the battery switch closed on the Philco 46-350 when working on the set with the back open, and while playing it on battery. The end of the clothespin should be tapered.

"I also use clothespins for clamps when gluing loose speaker cones.

"Intermittents are located easily by using a small electric hand hair dryer concentrated on suspected by-passes and coil connections."

Submitted by: Mr. Ray Rusthoi, Ray's Radio Service, 814 Foot-hill Blvd., La Canada, California.

PUBLICATION DATES

When will other sets of PHOTOFAC T Folders be published?

Volume 3—Set No. 27.....November 1

Volume 3—Set No. 28.....November 15

Volume 3—Set No. 29.....December 1

Volume 3—Set No. 30.....December 15

If you have been unable to get any issues of PHOTOFAC T Folder Sets, send your order and money directly to us and we will see that you are supplied.

ADMIRAL CHASSIS
MODEL 5H1 BATTERY OPERATED



ADMIRAL CHASSIS
MODEL 5H1 BATTERY OPERATED

ADMIRAL MODEL 7P33

TRADE NAME	Admiral, Models 7P32, 7P33, 7P34 (Ch. 5H1)
MANUFACTURER	Admiral Radio Corp., 3800 W. Cortland St., Chicago 47, Ill.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 1U4 RF Amp., 1R5 Converter, 1U4 IF Amp., 1S5 Det.-AVC-AF, 3V4 Power Output
POWER SUPPLY	105-125 Volts AC-DC or 9V DC "A" Supply and 90V DC "B" Supply in Pack Form.
RATING	.140 Amps. @ 117V AC or 50MA @ 9V DC and 14MA @ 90V DC
TUNING RANGE- BROADCAST	540-1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Check dial drum position on shaft. Tuner arm should just complete downward travel when tuning cap. is fully closed. At this point tuner arm should be on short flat part of cam. Pointer should be at last reference mark at low frequency end of dial.
If RF tuning slug must be changed use the following procedure. Turn tuning cap. fully closed. Screw the slug adjustment screw about halfway down. Place the slug in coil so that the top of it is flush with top of coil form. Solder slug wire to adjusting screw making certain wire is straight. Then follow procedure below for alignment. Use battery power when available. If AC power is used use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with the low side of the signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

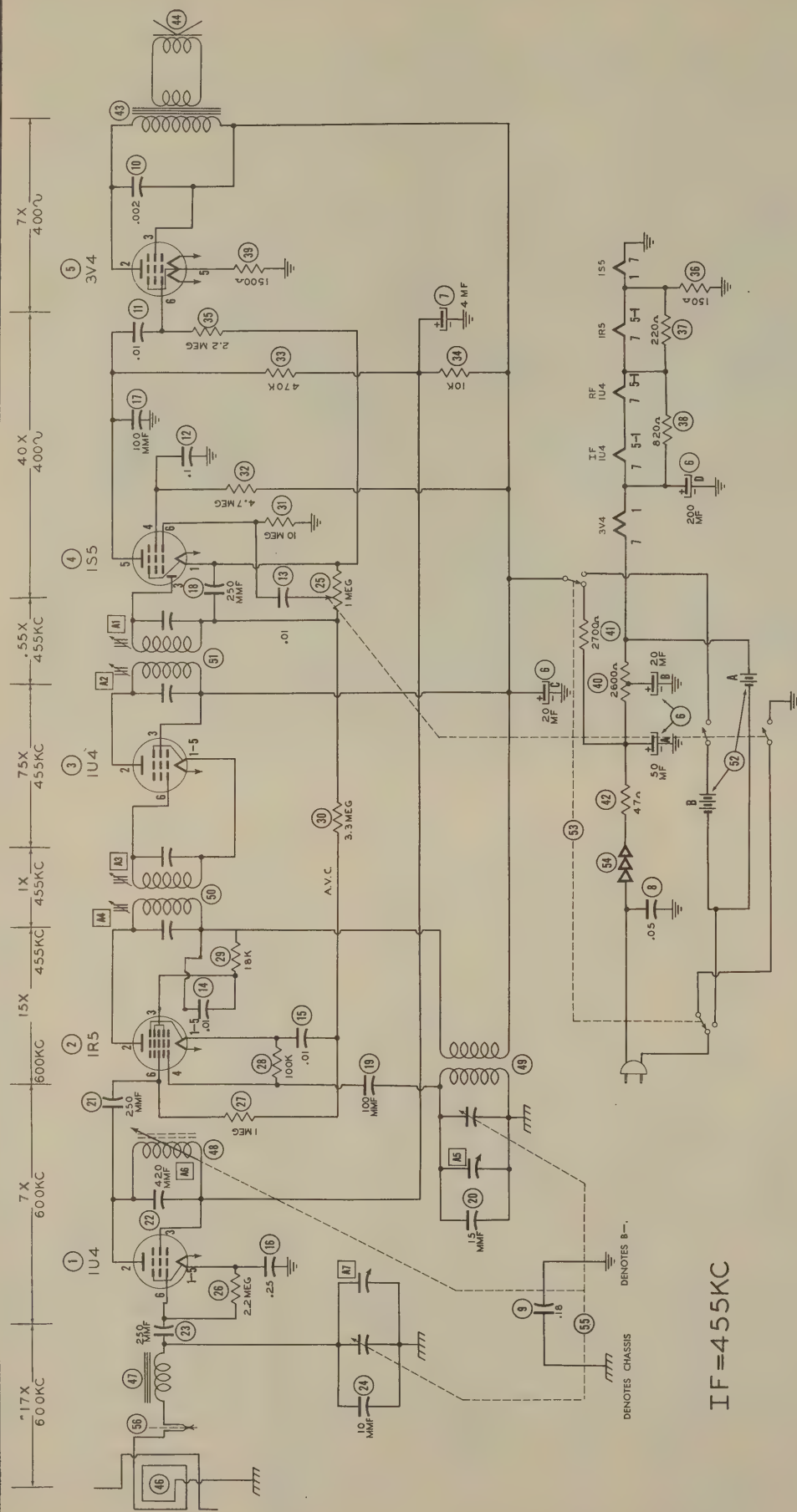
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD. with AC power 250MFD. with bat. power	High side to Pin 6 (grid) 1R5. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust in order given for maximum output. Then repeat in same order.
2 "	High side to rear stator of tuning cap. Low side to B-.	1620KC	"	"	A5	Adjust for maximum output.
3 "	"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output. Replace in cabinet and connect loop.
4 250MFD.	High side to ext. ant. lead. Low side to ext. ground lead.	"	"	"	A7	Adjust for maximum output.

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Indianapolis Indiana

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VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION:

Item	Tube	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1U4	2.5VDC	80VDC	0V.	2.5VDC	-2VDC	4VDC
2	1R5	1.3VDC	90VDC	50VDC	-1.0VDC§	0V.	2.5VDC
3	1U4	4VDC	50VDC	0V.	4VDC	4VDC	5.3VDC
4	1R5	1.3VDC	90VDC	50VDC	20VDC	-1.1VDC	0V.
5	2A4	5.5VDC	67VDC	3.7VDC	6.6VDC	4VDC	8VDC

STAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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Item	Take	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1U4	*	15K2	15K2	INF.	*	2, 2 Meg.	*
2	1B5	*	5K3	22K2	100K2	*	1 Meg.	*
3	1U4	*	5K2	5K2	INF.	*	55K	*
4	1B5	*	INF.	900K2	S	485K2	10 Meg.	OG
5	3V4	*	5K3	5K3	INF.	*	2, 2 Meg.	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4716-1

The stage gain measured values listed above are approximate values at average operative stage, rather than an absolute value. It is important to understand that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, bending and placement of probes, the accuracy of alignment, etc. that an absolute reading is impractical. AVC is made inoperative by shorting to B-.

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.



ADMIRAL MODEL 7RT42

TRADE NAME	Admiral, Models 7RT41, 7RT42, 7RT43 (Chassis 6L1)
MANUFACTURER	Admiral Corp., 3800 W. Cortland, Chicago 7, Ill.
TYPE SET	AC Operated Combination Radio-Phono Superheterodyne Receiver
TUBES (SIX)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC, 12SJ7 Audio Amp., 35L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 110-120 Volts AC

TUNING RANGE—BROADCAST 540-1630KC

RATING .230 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to first hole at left end of dial backplate. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 250 MMFD	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2 250 MMFD	"	1630KC	"	"	A5	Adjust for maximum output. Replace receiver in cabinet.
3	Loop	1400KC	Tune for maximum output.	"	A6	Fashion loop of several turns of wire and radiate signal in to loop of receiver. Adjust for maximum output. This adjustment is accessible through a small hole in the rear of the cabinet.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove phono-pickup plug from chassis.
3. Disconnect phono motor plug.
4. Remove two wood screws holding loop antenna in cabinet.
5. Remove four hex head screws holding chassis in cabinet. Remove chassis and loop from cabinet.

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10/47 SET #26 FOLDER #4716-2

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

ADMIRAL CHASSIS
MODEL 6L1

CHASSIS—TOP VIEW

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		ADMIRAL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	30	67A14-1	7N129	DSB-403020-150	7A-303	Filter - Yellow
B	150				PR8150-30-30	" - Blue
C	150				PR825-25	" - Red
D	25				TC-15	Cathode Bypass-Green
8	.05	64B1-22	TP426	TP426	TP426	Line Filter
9	.03	64B1-23	TP426	TP426	TP426	Output Plate Bypass
10	.01	600	TP410	TP410	TP410	Audio Coupling
11	.05	600	TP426	TP426	TP426	AF Screen Bypass
12	.1	400	TP428	TP428	TP428	Line Isolator-See Note 1
13	.01	400	TP421	TP421	TP421	Audio Coupling
14	.002	600	TP405	TP405	TP405	Tone Comp.
15	.001	600	TP405	TP405	TP405	Phono Coupling
16	.1	200	TP428	TP428	TP428	Phono Decoupling
17	.05	400	TP426	TP426	TP426	Shield Isolation
18	.01	400	TP421	TP421	TP421	Tone Comp.
19	.05	400	TP426	TP426	TP426	Screen Bypass
20	.1	200	TP428	TP428	TP428	AVC Filter
21	.02	200	TP423	TP423	TP423	Fixed Pad-See Note 2
22	.005	600	TP408	TP408	TP408	Ext. Ant. Coupling
23	15	65B6-18	MC240	MO 5-325	5W525	Diode Filter
24	250	65B6-6	MC240	MO 5-325	5W525	Tone Comp.
25	500	65B6-6	MC245	MO 5-35	5W575	Fixed Trimmer
26	15	65B6-18	MC245	MO 5-42	5W502	Osc. Grid
27	50	65B6-4	MC255	MO 5-45	5W595	

Note 1-Later productions use .18MFD. Admiral Part #6442-2.
Note 2-Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		ADMIRAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
28A	1 Meg. 1/2	7552-6	TY243	AT-112		Volume Control
B Shaft	2	Not Req.	SS25	KSS-3		Attach to 28A per instructions
29A	2 Meg. 1/2	7531-12	MK403	AM-53-S		Tone Control
B Shaft	2	Not Req.		KSS-3		Attach to 29A per instructions
C Switch			M26	SW-A		

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		ADMIRAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
30	22K3					Red-Red-Or. Oscillator Grid
31	10 Meg.	60B8-223	BTS-22K	BTS-22K		Br.-Blk.-Blue AVC Network
32	1 Meg.	60B8-108	BTS-10 Meg.	BTS-10 Meg.		Br.-Blk.-Grn. AVC Network
33	100K3	60B8-105	BTS-100K	BTS-100K		Br.-Blk.-Yl. Diode Filter
34	27K3	60B8-273	BTS-27K	BTS-27K		Red-Vl.-Or. Tone Compensation
35	33K3	60B8-333	BTS-33K	BTS-33K		Or.-Or.-Or. Phono Dropping-See Note
36	22K3	60B8-223	BTS-22K	BTS-22K		Red-Red-Or. Phono Decoupling
37	100K3	60B8-101	BTS-100K	BTS-100K		Br.-Blk.-Br. Decoupling
38	150K2	60B8-154	BTS-150K	BTS-150K		Yl.-Vl.-Grn. AF Grid
39	4.7 Meg.	60B8-475	BTS-4.7 Meg.	BTS-4.7 Meg.		Br.-Gray-Grn. AF Screen Dropping
40	1.8 Meg.	60B8-185	BTS-1.8 Meg.	BTS-1.8 Meg.		Br.-Blk.-Yl. AF Plate Load
41	100K2	60B8-104	BTS-100K	BTS-100K		Yl.-Vl.-Yl. Output Grid
42	470K2	60B8-474	BTS-470K	BTS-470K		Br.-Vl.-Br. Output Cathode
43	150K3	60B14-151	BW-1-150	BW-1-150		Or.-Or.-Blk. Surge Limiter
44	33K2	60B28-3	BW-1-33	BW-1-33		Red-Red-Br. Filter
45	220K3	60B28-7	BW-1-220	BW-1-220		
46	100K3	60B28-2	BTA-1000	BTA-1000		Red-Red-Br. Filter

Note-Not used in all models.

PARTS LIST AND DESCRIPTIONS (Continued) **TRANSFORMER (OUTPUT)**

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.		ADMIRAL PART No.	THORDARN PART No.	MERIT PART No.	
47	2200Ω 3.2Ω	250Ω	1.0Ω	96A17	A-3876*	T22S45*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.		ADMIRAL PART No.	JENSEN PART No.		
48	8Ω	3.2Ω		78B19-1	ST-2071		Fabricate new mounting bracket.
49	4-3/4"	1/2"			Mod. P5-V		

R F COILS

ITEM No.	USE	DC RES.			REPLACEMENT DATA		
		PRI.	SEC.		ADMIRAL PART No.	MEISSNER PART No.	
50	Loop Ant.	1.5Ω			69B13		
51	Osc. Coil	5.6Ω			69A14	14-1040	
52	Input IF	18Ω			72B3	16-6658	
53	Output IF	21Ω			72B4	18-6660	

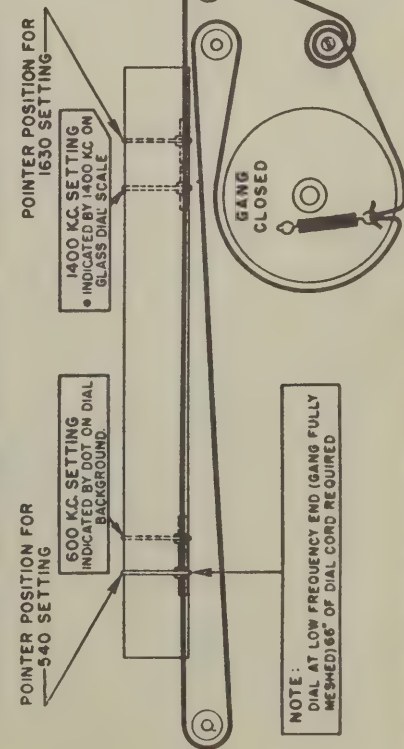
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ADMIRAL PART No.		
54	Bayonet	6-8	0.15	Brown	81A1-8		Type 47

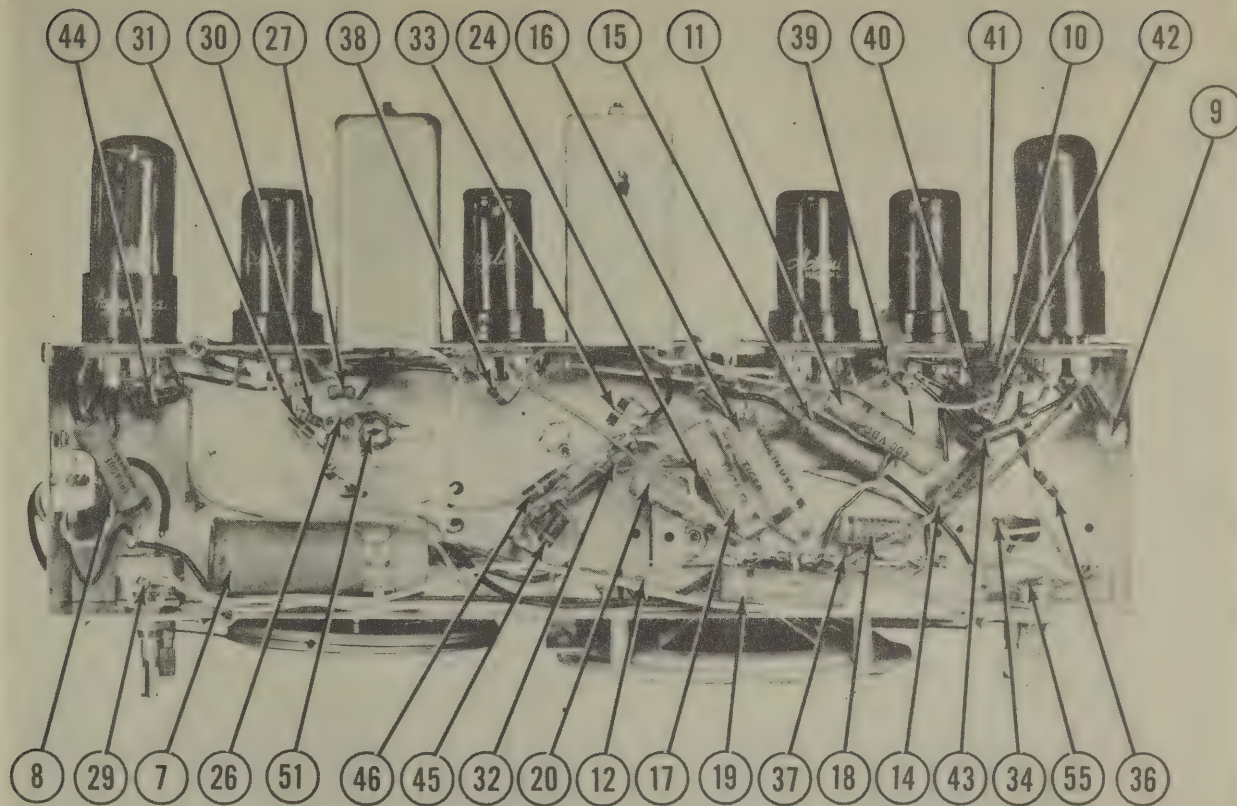
MISCELLANEOUS

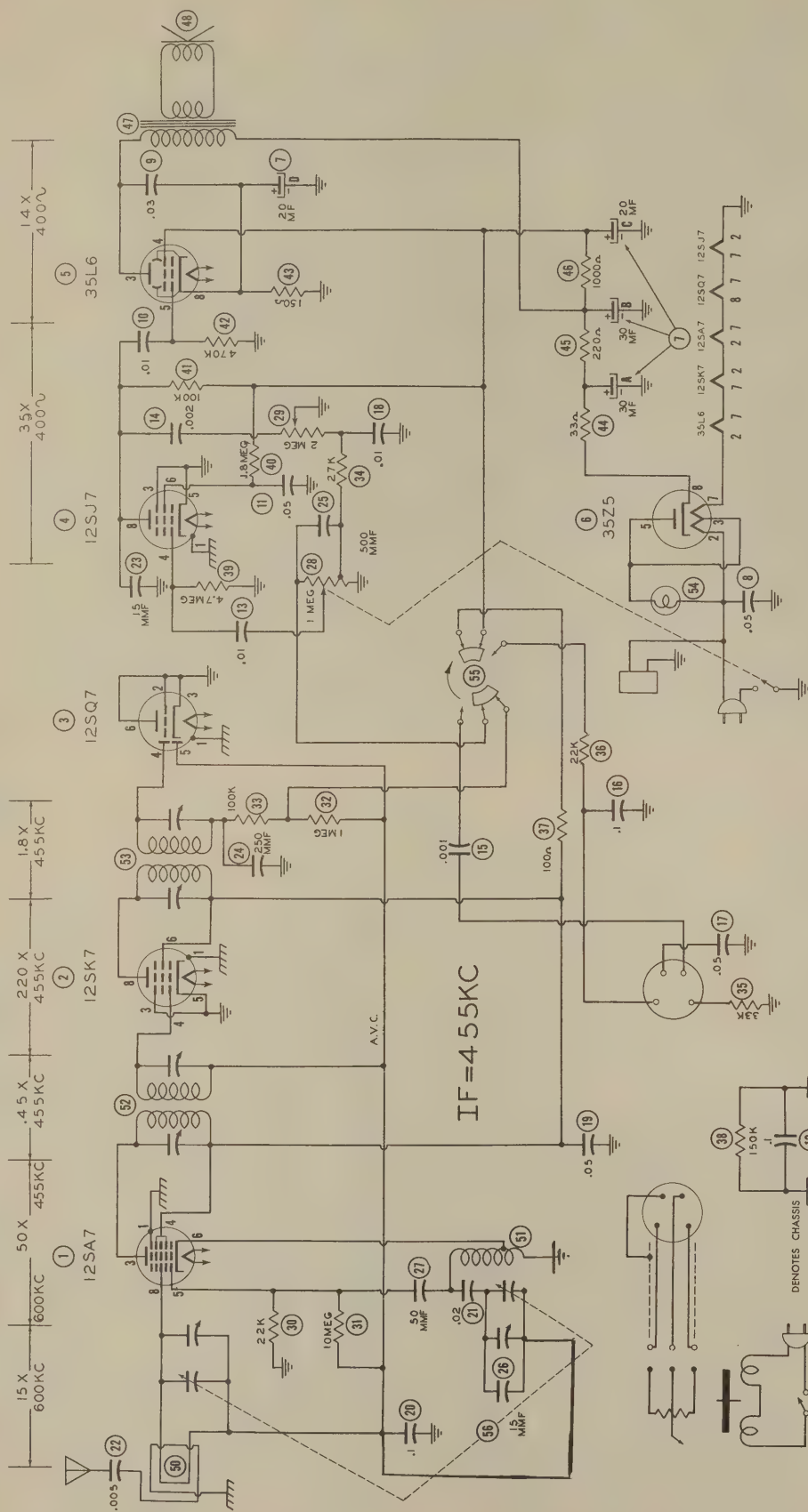
ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
55	Switch	77A16-2	Radio-Phono
56	2 Gang Var. Cap	68B5	0-420MμF, 0-162MμF
	Dial Scale	21B35-1	(7RT41, 7RT42)
	Escutcheon	21B33-1	(7RT41, 7RT43)
	Knob	25023-1	(7RT41, 7RT42)
	Pointer	33A19-1	
	Pickup	25A21	
		A1372	Cartridge & Needle

DIAL CORD STRINGING & POINTER SETTING



CHASSIS—BOTTOM VIEW





RADIO-PHONO SWITCH IN RADIO POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	OV.	37VAC	77VDC	77VDC	-7.7VDC	OV.	25VAC	-6VDC
2	12SK7	OV.	37VAC	OV.	77VDC	OV.	77VDC	50VAC	77VDC
3	12SQ7	OV.	OV.	OV.	-6VDC	OV.	77VDC	12VAC	25VAC
4	12SQ7	OV.	OV.	OV.	-4VDC	OV.	12VDC	12VAC	62VDC
5	35L6GT	OV.	85VAC	94VDC	78VDC	OV.	OV.	50VAC	4.8VDC
6	35Z5GT	OV.	117VAC	112VAC	OV.	112VAC	113VDC	85VAC	116VDC

VOLUME READINGS

DENOTES CHASSIS

DENOTES B+

STAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFAC STANDARD NOTATION SCHEMATIC
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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	160KΩ	40Ω	50KΩ	22KΩ	.6Ω	25Ω	1.7 MΩ	
2	12SK7	160KΩ	40Ω	0Ω	1.7 MΩ	0Ω	50KΩ	50KΩ	
3	12SQ7	160KΩ	0Ω	0Ω	1.7 MΩ	0Ω	13Ω	25Ω	
4	12SQ7	160KΩ	0Ω	0Ω	5 MΩ	0Ω	1.8 MΩ	13Ω	150KΩ
5	35L6GT	1N.F.	85Ω	50KΩ	50KΩ	500KΩ	1N.F.	50Ω	150Ω
6	35Z5GT	1N.F.	115Ω	112Ω	1N.F.	112Ω	50KΩ	85Ω	50KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4716-2

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

AIR KING
MODEL A-600

AIR KING
MODEL A-600



AIR KING
MODEL A-600

AIR KING MODEL A-600

TRADE NAME Air King, Model A-600 (Ch. 4681)
MANUFACTURER Air King Prod. Co., Inc., 1523 63rd St., New York, N.Y.
TYPE SET AC-DC Superheterodyne with Loop Antenna
TUBES (SIX) Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35W4 Rectifier.

POWER SUPPLY 110-120 Volts AC-DC

TUNING RANGE—BROADCAST 530-1700KC

RATING

.240 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

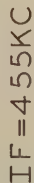
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to left stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2 200MMFD	High side to ext. ant. terminal. Low side to chassis.	1700KC	"	"	A5	Adjust for maximum output.
3 200MMFD	"	1500KC	Tune for maximum output.	"	A6	" " " "

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DATE 10/47 SET 26 FOLDER #4716-3



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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4716-3

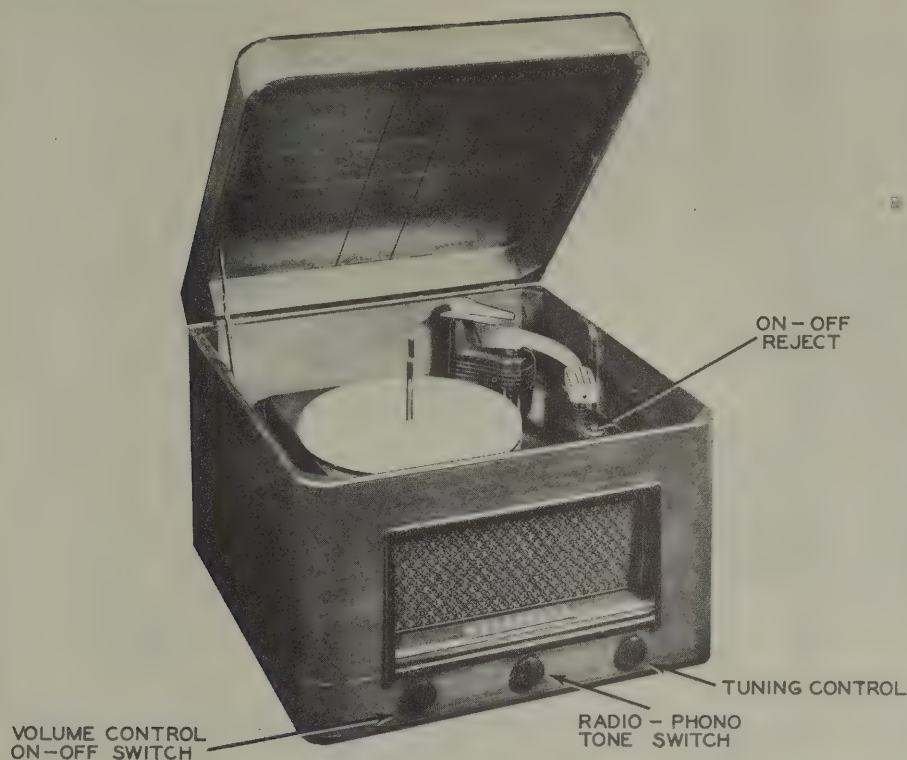
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	128K7GT	OV.	38VAC	OV.	-7VDC	OV.	62VDC	38VAC	30VDC
2	128K7GT	OV.	13VAC	62VDC	6VDC	-3.1Vdc	OV.	26VAC	-7VDC
3	128K7GT	OV.	38VAC	OV.	-7VDC	OV.	62VDC	50VAC	62VDC
4	128K7GT	OV.	-8VDC	OV.	-5VDC	-6VDC	43VDC	13VAC	OV.
5	351A0P	OV.	50VAC	110VDC	62VDC	-9VDC	-2.2VDC	85VAC	OV.
6	3594A	OV.	OV	85VAC	117VAC	111VAC	112VAC	11VDC	-

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	128K70T	0Q	39Q	0Q	2.6 78F	0Q	50KQ	26Q	55KQ
2	128K70T	0Q	13Q	50KQ	50KQ	32KQ	4Q	26Q	2.7 78F
3	128K70T	0Q	36Q	0Q	2.6 78F	0Q	50KQ	53Q	50KQ
4	128K70T	0Q	47KQ	0Q	570KQ	570KQ	270KQ	13Q	0Q
5	355L60T	0Q	53Q	50KQ	50KQ	41KQ	80KQ	85Q	0Q
6	35W4	1N7	1N7	95Q	115Q	130Q	112Q	1KQ	-

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Voltage control at maximum, no signal applied for voltage measurements.



AIRLINE MODEL 74WG-2002A

TRADE NAME	Airline, Model 74WG-2002A					
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.					
TYPE SET	AC Operated Radio-Phono Combination Superheterodyne Receiver with Loop Antenna					
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7 Converter, 12SF7 IF Amp.-Det.-AVC, 12SJ7 AF Amp., 35L6GT Power Output, 35Z5GT Rectifier.					
POWER SUPPLY	105-125 Volts AC					
TUNING RANGE—BROADCAST	540-1600KC		RATING	.230 Amp. @ 117 Volts AC		
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
To set pointer, turn tuning capacitor fully closed and set pointer to second mark from right end of diffuser strip. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin #2 (grid) of 12SF7. Low side to B-.	455KC	Tuning capacitor fully open.	Across voice coil	A1,A2,	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
.1 MFD.	High side to Pin #8 (grid) of 12SA7. Low side to B-.	455KC	"	"	A3,A4	Adjust for maximum output.
.1 MFD.	"	1620KC	"	"	A5,	" " " "
50 MMF.	High side to ext. ant. clip. Low side to chassis.	1400KC	Tune for maximum output.	"	A6	" " " "

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DATE 10/47 SET 26 FOLDER #4716-4

VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

TONE CONTROL

PHONO- BAND SWITCH

AIRLINE MODEL 74WG-2709A

TRADE NAME Airline, Model 74WG-2709A
SUPPLIER Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.
TYPE SET AC Operated Radio-Phono Combination Superheterodyne with Loop Antenna
TUBES (SEVEN) Types, 6SJ7 Mixer, 6J5 Oscillator, 6SK7 1st IF Amp., 6SK7 2nd IF Amp., 6SQ7 Det.-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier.

POWER SUPPLY 105-125 Volts AC
TUNING RANGE—BROADCAST 540-1600KC

RATING .510 Amps. @ 117V AC
SHORT WAVE 5.75-18.3MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin #4 (grid) of 6SJ7 Low side to chassis.	455KC	BC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2	100MMF.	High side to ant. lead. Low side to chassis.	1600KC	"	"	"	A5	" " " "
3	100MMF.	"	1400KC	"	Tune for maximum output.	"	A6	" " " "
4	100MMF.	"	600KC	"	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3, and 4 until no further improvement can be made.
5	400Ω carbon res.	"	18.3MC	SW	Tuning cap. fully open.	"	A8	Adjust for maximum output.
6	"	"	17.0MC	"	Tune for maximum output.	"	A9	Rock tuning cap. and adjust for maximum output.
7	100MMF.	"	1400KC	BC	"	"	A6	With chassis reassembled in cabinet adjust for maximum output. Set pointer at 1400KC mark on dial.

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 DATE 10/47 SET #26 FOLDER #4716-5

AIRLINE MODEL
74WG-2709A

AIRLINE MODEL
74WG-2709A

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			RMA BASE TYPE	INSTALLATION NOTES
		AIRLINE PART No.	STANDARD REPLACEMENT			
1	Mixer	6S17	6S17	8N		
2	Oscillator	6S17	6S17	6Q		
3	1st IF Amp.	6S17	6S17	8N		
4	2nd IF Amp.	6S17	6S17	8N		
5	Det.-AVC-AF	6S17	6S17	8Q		
6	Power Output	6V6GT	6V6GT	7AC		
7	Rectifier	5Y3GT	5Y3GT	5T		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		AIRLINE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
1	20 450	45X277	TC75	M-20-450	UT-20	PRS450-20	Filter - White
2	40 400	D66302	TP406	S-6-003	TC-23	BR4045	Output Plate Bypass
3	.003 400	B66402	TP407	S-6-004	TC-24	DT6D3	Tone Comp.
4	.004 200	B66254	TP423	S-4-25	TC-2	DT4P25	Bias Filter
5	.02 200	D66203	TP421	S-4-02	TC-12	DT4S2	Audio Coupling
6	.01 400	B66103	TP421	S-4-01	TC-11	DT4S1	"
7	.04 400	D66403	TP425	S-6-04	TC-14	DT4S4	IF Screen Bypass
8	.02 400	D66203	TP423	S-4-02	TC-12	DT4S2	RF Bypass Pwr. Supply
9	.04 400	D66403	TP425	S-6-04	TC-14	DT4S4	Mixer Screen Bypass
10	.05 200	B66503	TP426	S-4-05	TC-15	DT4S5	AVC Filter
11	.02 200	D66203	TP423	S-4-02	TC-12	DT4S2	Mixer Cathode Bypass
12	.02 600	D67501	TP403	S-6-0005	TC-35	DT6T5	RF Coupling
13	.00475 180	46X289	TP423	S-4-02	TC-12	DT4S2	Fixed Pad.
14	.02 400	D66203	TP423	M-5-32	TC-12	DT4S2	Osc. Feedback
15	.02 400	47X468	MC225	M-5-45	1FV-45	SW5T2	AF Plate Bypass
16	50 300	47X112	MC225	M-5-45	1FV-45	SW5Q5	Diode Filter
17	50 300	47X463	MC225	M-5-45	MS-45	SR5Q5	Osc. Grid
18	47 47	47X463	MC225	M-5-45	MS-42	SR5Q2	Fixed Trimmer
19	20 20	47X482	MC215	M-5-42	MS-41	SR5Q1	Osc. Coupling
20	7 10	47X477	MC215	M-5-41	MS-41	SR5Q1	IF Coupling

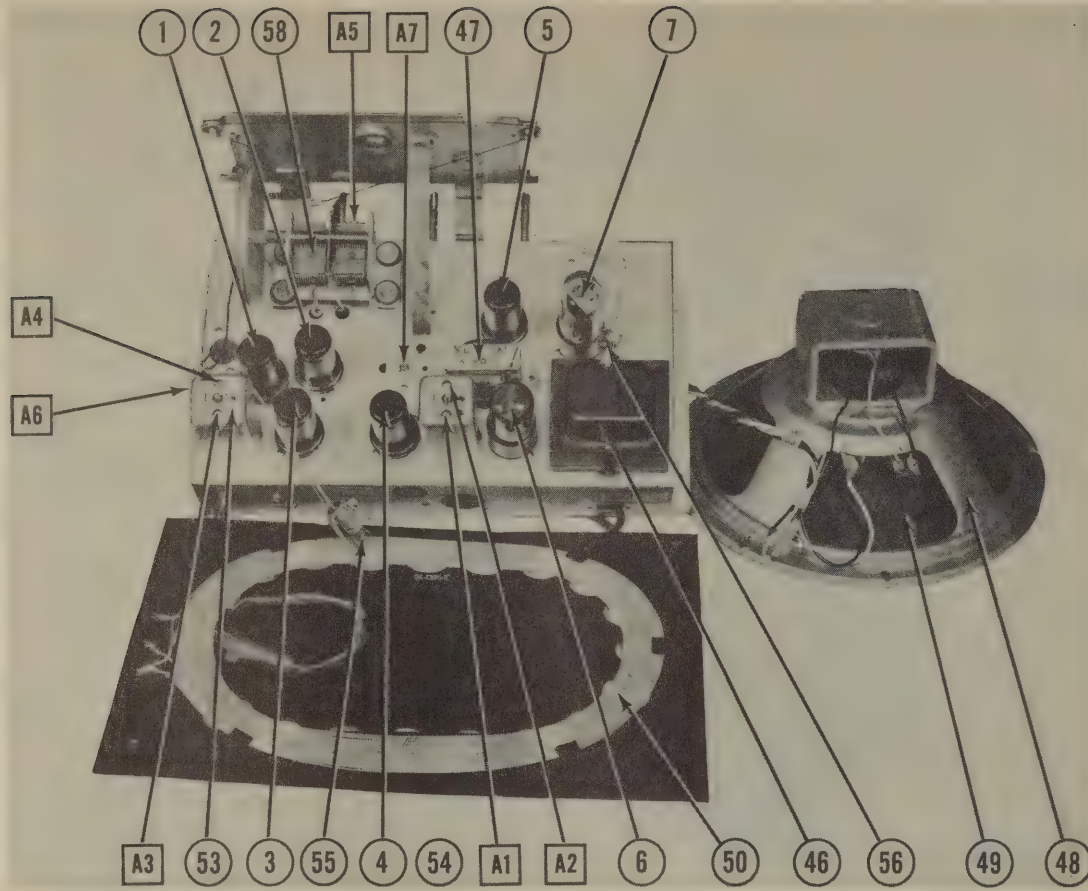
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIRLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
28A	500K \pm	36X311	14401	D13-133	AM-50-Z	Volume control
28B	Shaft	Not Req.	126	E 41	KSS-3	Attach to 28A per Instructions
29A	5 Meg.	40X259B	Not Req.	Not Req.	SW-A	Tone Control
29B	Shaft	Not Req.	Not Req.	Not Req.	KSS-3	Attach to 29A per Instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		AIRLINE		IRC		
		PART No.	PART No.	PART No.	PART No.	
30	2.2 Meg.	B85225	BTS-2.2 Meg.	Red-Red-Grn. Mixer Grid		
31	2200 Ω	B84222	BTS-2200	Red-Red-Red. Mixer Cathode		
32	10K Ω	C84103	ETA-10K	Br.-Blk.-Or. Oscillator Plate Load		
33	39K Ω	B84393	BTS-39K	Or.-White-Or. Oscillator Grid		
34	68K Ω	B84683	BTS-68K	Blue-Gray-Or. Mixer Screen Dropping		
35	2700 Ω	B84272	BTS-2700	Red-V1.-Red IF Plate Load		
36	1 Meg.	B85105	BTS-1 Meg.	Br.-Blk.-Grd. IF Grid		

CHASSIS—TOP VIEW

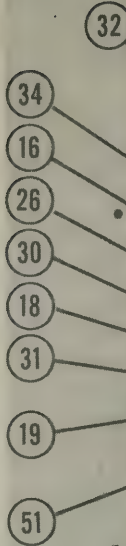


PARTS LIST AND DESCRIPTIONS (Continued)

CHASSIS—BOTTOM VIEW

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.		
37	2.2 Meg.	1/2	B85225	BTS-2.2 Meg.	Red-Red-Grn.	AVC Network
38	39K Ω	1/2	B84393	BTA-39K	Yl.-White-Or.	IF Screen Dropping
39	47K Ω	1/2	B85473	BTS-47K	Yl.-Vl.-Gr.	Diode RF Filter
40	4.7 Meg.	1/2	B85475	BTS-4.7 Meg.	Yl.-Vl.-Grn.	AF Grid
41	470K Ω	1/2	B85474	BTS-470K	Yl.-Vl.-Yl.	AF Plate Load
42	330K Ω	1/2	B85334	BTS-330K	Or.-Or.-Yl.	Output Grid
43	91K Ω	1/2	B83913	BTS-82K	White-Br.-Or.	Bias Network
44	620K Ω	1/2	B83624	BTS-680K	Blue-Red-Yl.	Bias Network



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	OV.	OV.	OV.	OV.	6.2VDC	167VDC	6.4VAC	215VDC
2	6J5	OV.	OV.	137VDC	167VDC	-18VDC	137VDC	6.4VAC	OV.
3	6SK7	OV.	OV.	OV.	OV.	OV.	70VDC	6.4VAC	192VDC
4	6SK7	OV.	OV.	OV.	OV.	OV.	70VDC	6.4VAC	215VDC
5	6SQ7	OV.	OV.	OV.	OV.	OV.	80VDC	OV.	6.4VAC
6	6V6GT	OV.	OV.	200VDC	215VDC	-5VDC	OV.	6.4VAC	OV.
7	5Y3GT	OV.	215VDC	OV.	310VAC	OV.	310VAC	OV.	215VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	OV.	OV.	OV.	5 Meg.	2.2K Ω	160K Ω	.1 Ω	90K Ω
2	6J5	OV.	OV.	100K Ω	160K Ω	38K Ω	100K Ω	.1 Ω	.7 Ω
3	6SK7	OV.	OV.	OV.	2.7 Meg.	OV.	130K Ω	.1 Ω	93K Ω
4	6SK7	OV.	OV.	OV.	3.5 Meg.	OV.	130K Ω	.1 Ω	90K Ω
5	6SQ7	OV.	4.6 Meg.	OV.	550K Ω	550K Ω	560K Ω	OV.	.1 Ω
6	6V6GT	OV.	OV.	90K Ω	90K Ω	410K Ω	INF.	.1 Ω	OV.
7	5Y3GT	OV.	90K Ω	INF.	1.6K Ω	INF.	1.6K Ω	INF.	90K Ω

† TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B + CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIRLINE PART No.	STANDARD REPLACEMENT		
1	Mixer	6S7	6S7	8N	
2	Oscillator	6J5	6J5	8Q	
3	1st IF Amp.	6SK7	6SK7	8N	
4	2nd IF Amp.	6SK7	6SK7	8N	
5	Det.-AVC-AF	6SK7	6SK7	8Q	
6	Power Output	6V6GT	6V6GT	7AC	
7	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AIRLINE PART No.	MALLOY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.		
8A	20	450	45X277	TC75	M-20-450	UT-20	PRS450-20	BR2045	Filter - White
B	40	400		TC78	M-40-450	TC-40	PRS450-40	BR4045	" - Black
9	.003	400	D66302	TP406	S-6-003	TC-23	484-003	DT6D3	Output Plate Bypass
10	.004	200	B66402	TP407	S-6-004	TC-24	484-004	DT6D4	Tone Comp.
11	.02	200	B66254	TP420	S-4-25	TC-2	484-25	DT4P25	Bias Filter
12	.25	200	D66203	TP423	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
13	.01	400	D66103	TP421	S-4-01	TC-11	484-01	DT4S1	"
14	.04	400	D66403	TP425	S-6-04	TC-14	484-05	DT4S4	IF Screen Bypass
15	.02	400	D66203	TP423	S-4-02	TC-12	484-02	DT4S2	RF Bypass Pwr. Supply
16	.04	400	D66403	TP425	S-6-04	TC-14	484-05	DT4S4	Mixer Screen Bypass
17	.05	200	D66503	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
18	.02	400	D66203	TP423	S-4-02	TC-12	484-02	DT4S2	Mixer Cathode Bypass
19	.0005	600	D67501	TP403	S-6-0005	TC-35	1468-0005	DT6T5	RF Coupling
20	.00475	150	46X289						Fixed Pad.
21	.02	400	D66203	TP423	S-4-02	TC-12	484-02	DT4S2	Osc. Feedback
22	.22	220	47X468	NC237	MO 5-32	1FV-32	1468-0002	SW5T2	AF Plate Bypass
23A	50	300	47X112	NC225	MO 5-45	1FV-45	1468-0005	SW505	Diode Filter
24	300		NC225	NC225	MO 5-45	1FV-45	1468-0005	SW505	"
25	50		47X463	NCB225	MO 5-45	NS-45	1469-0005	SR505	Osc. Grid
26	47		47X462		MO 5-42	NS-42		SR502	Fixed Trimmer
27	20		47X182						Osc. Coupling
28	7		47X477	NCB215	MO 5-41	NS-41	1469-0001	SR5Q1	IF Coupling
29	10								

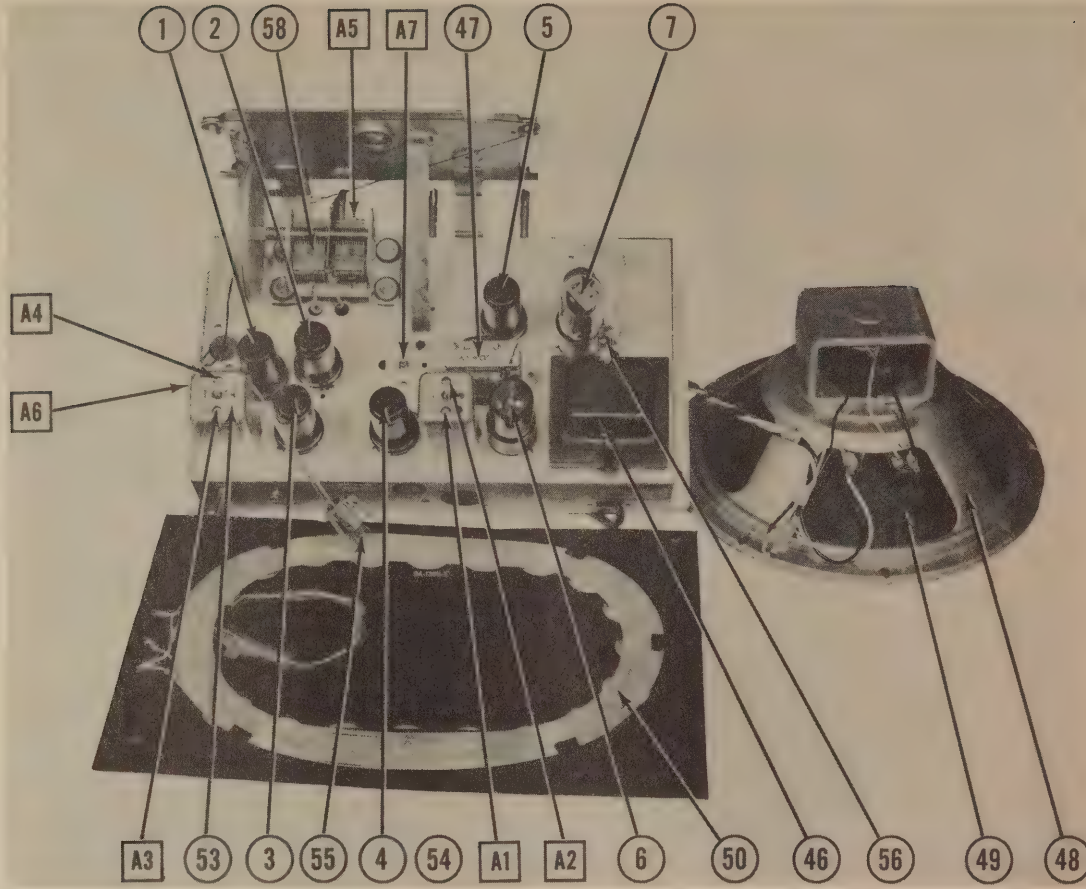
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIRLINE PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
28A	500KΩ	36X311	M401	D13-133	AM-60-2	Volume control
29A	B Shaft	Not Req.	Not Req.	E 41	KSS-3	Attach to 28A per instructions
29B	C Switch	40X2598	M26	Not Req.	SN-4	Tone Control
30	5 Meg.	Not Req.	Not Req.	Not Req.	AM-69-2	Attach to 29A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		AIRLINE PART No.	IRC PART No.	
30	2.2 Meg.	BR5225	BTS-2.2 Meg.	Red-Red-Grn. Mixer Grid
31	2200Ω	BR4222	BTS-2200	Red-Red-Red Mixer Cathode
32	10KΩ	BR4103	BTS-10K	Br.-Blk.-Or. Oscillator Plate Load
33	39KΩ	BR4893	BTS-39K	Or.-White-Or. Oscillator Grid
34	68KΩ	BR4683	BTS-68K	Blue-Gray-Or. Mixer Screen Dropping
35	2700Ω	BR4272	BTS-2700	Red-Vi.-Red IF Plate Load
36	1 Meg.	BR5105	BTS-1 Meg.	Br.-Blk.-Grn. IF Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	
37	2.2 Meg.	1	B85225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
38	39K Ω	1	B84393	BTA-39K	Or.-White-Or. IF Screen Dropping
39	47K Ω	1	B85473	BTS-47K	Y1.-V1.-Or. Diode RF Filter
40	4.7 Meg.	1	B85475	BTS-4.7 Meg.	Y1.-V1.-Grn. AF Grid
41	470K Ω	1	B85474	BTS-470K	Y1.-V1.-Y1. AF Plate Load
42	330K Ω	1	B85334	BTS-330K	Or.-Or.-Y1. Output Grid
43	91K Ω	1	B83915	BTS-91K	White-Br.-Or. Bias Network
44	620K Ω	1	B83924	BTS-620K	Blue-Red-Y1. Bias Network
45	220 Ω	1	B85221	BN-220	Red-Red-Br. Decoupling

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	AIRLINE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
46	117V AC @ .51A	610V CT @ .062A	5.1V AC @ 1.8A	6.4V AC @ 2.25A	53X235	P-6011*	T22R02*	P-2951†

*Use universal mounting brackets. †Drill one new mounting hole.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI.	SEC.	AIRLINE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
47	7400 Ω	4.0 Ω	440 Ω	.7 Ω	51X97A	A-3923	T22S46†	A-2901	†Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC IMP.	AIRLINE PART No.	JENSEN PART No.	
48	1500 Ω	4.0 Ω	12A455	ST-175 Mod. F10-S	
49	8 Ω	1"	NOT READILY	REPLACEABLE	USE COMPLETE SPEAKER UNIT.

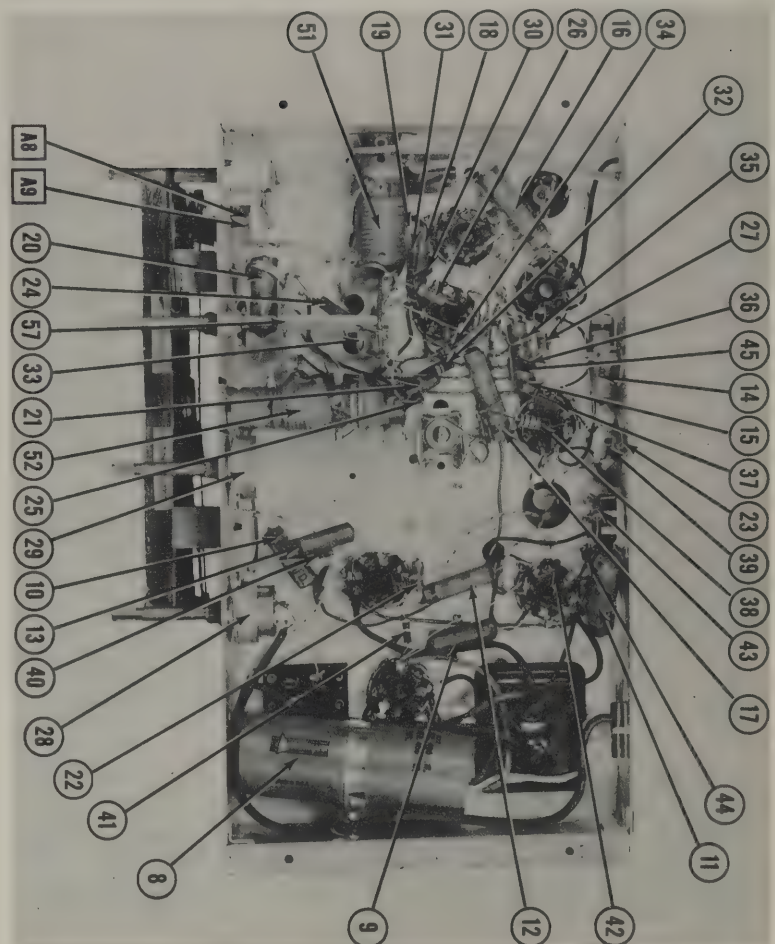
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.	
50	Loop Ant.	.1 Ω	.3 Ω	9A1395		
51	SW Ant. Coil	.5 Ω	.0 Ω	9A1451	14-1044	
52A	BC Osc. Coil	.7 Ω	2.5 Ω	9A1452		Items 52A & 52B wound on same form
53	SW Osc. Coil	.1 Ω	.0 Ω	9A1810	16-6658	
54	Input IF	21.3 Ω	21.8 Ω	9A1811	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIRLINE PART No.		
55	Bayonet	7.5	0.2	White			Type 51

CHASSIS—BOTTOM VIEW



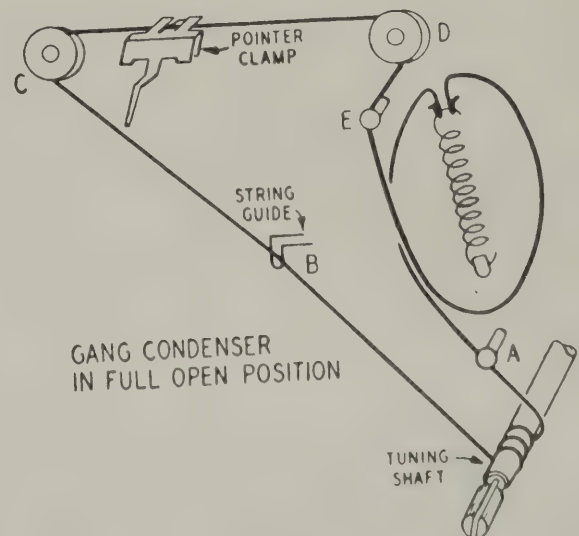
PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
57	Switch	2A177	Band & Phono
58	2 Gang Var. Cap.	14A150	(16-455MMF, 22-421 MMF)
A6	Trimmer Cap.	17A149	(1.8-12 MMF) BC Ant. Adj.
A8	Dual Trimmer	17A163	(2-25 MMF) SW Osc. Adj.
A9	Dial Scale	58X593	Glass
	Pointer	15X225	(volume)
	Knob	10A530	(tuning)
	"	10A531	(tone)
	"	10A532	(band change)
	"	10A533	

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove speaker plug from chassis.
3. Remove phono-motor plug from chassis.
4. Remove phono-pickup plug from chassis.
5. Remove ground foil lead from chassis.
6. Remove loop antenna leads from loop.
7. Remove two dial lights from brackets.
8. Remove four screws holding chassis in cabinet. Remove chassis from cabinet.
9. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.
10. Remove brads from loop. Remove loop from cabinet.



DRIVE DIAGRAM

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	OV.	OV.	OV.	OV.	6.2VDC	167VDC	6.4VAC	215VDC
2	6J5	OV.	OV.	137VDC	167VDC	-18VDC§	137VDC	6.4VAC	OV.
3	6SK7	OV.	OV.	OV.	-.5VDC	OV.	70VDC	6.4VAC	192VDC
4	6SK7	OV.	OV.	OV.	-.2VDC	OV.	70VDC	6.4VAC	215VDC
5	6SQ7	OV.	-.6VDC	OV.	-.5VDC	-.5VDC	80VDC	OV.	6.4VAC
6	6V6GT	OV.	OV.	200VDC	215VDC	-5VDC	OV.	6.4VAC	OV.
7	5Y3GT	OV.	215VDC	OV.	310VAC	OV.	310VAC	OV.	215VDC

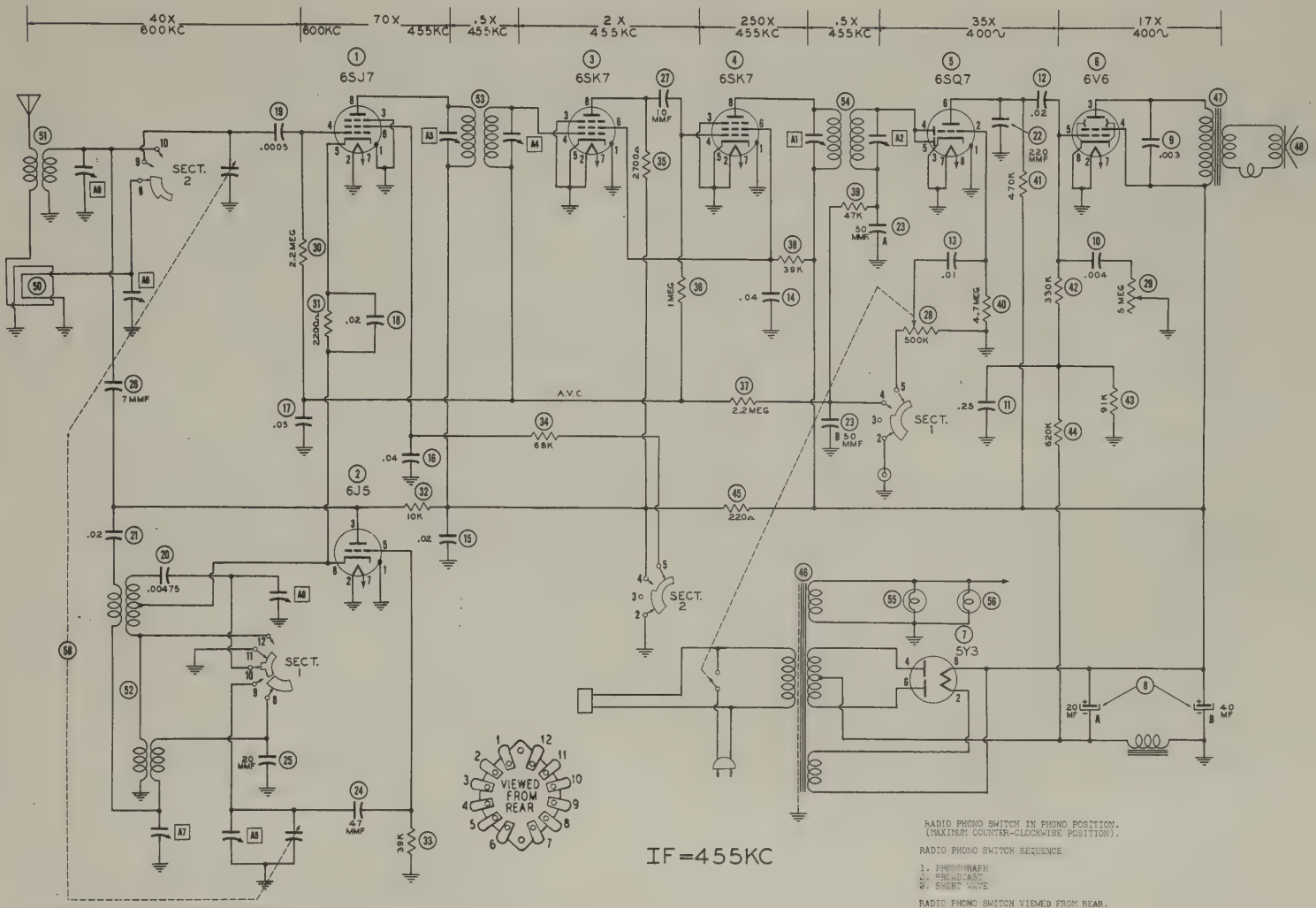
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	0Ω	0Ω	0Ω	5 Meg.	2.2KΩ	160KΩ	.1Ω	50KΩ
2	6J5	0Ω	0Ω	100KΩ	160KΩ	39KΩ	100KΩ	.1Ω	.7Ω
3	6SK7	0Ω	0Ω	0Ω	2.7 Meg.	0Ω	130KΩ	.1Ω	93KΩ
4	6SK7	0Ω	0Ω	0Ω	3.5 Meg.	0Ω	130KΩ	.1Ω	90KΩ
5	6SQ7	0Ω	4.5 Meg.	0Ω	550KΩ	550KΩ	560KΩ	0Ω	.1Ω
6	6V6GT	0Ω	0Ω	90KΩ	90KΩ	41KΩ	INF.	.1Ω	0Ω
7	5Y3GT	0Ω	90KΩ	INF.	1.6KΩ	INF.	1.6KΩ	INF.	90KΩ

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

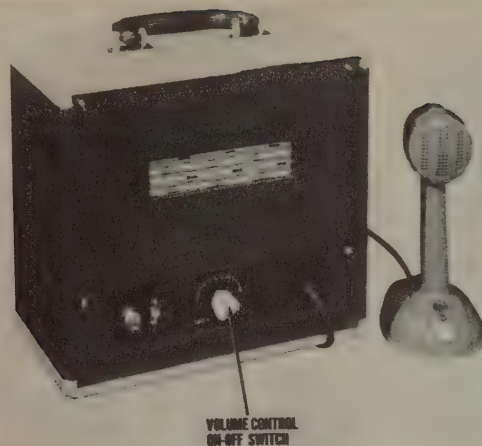


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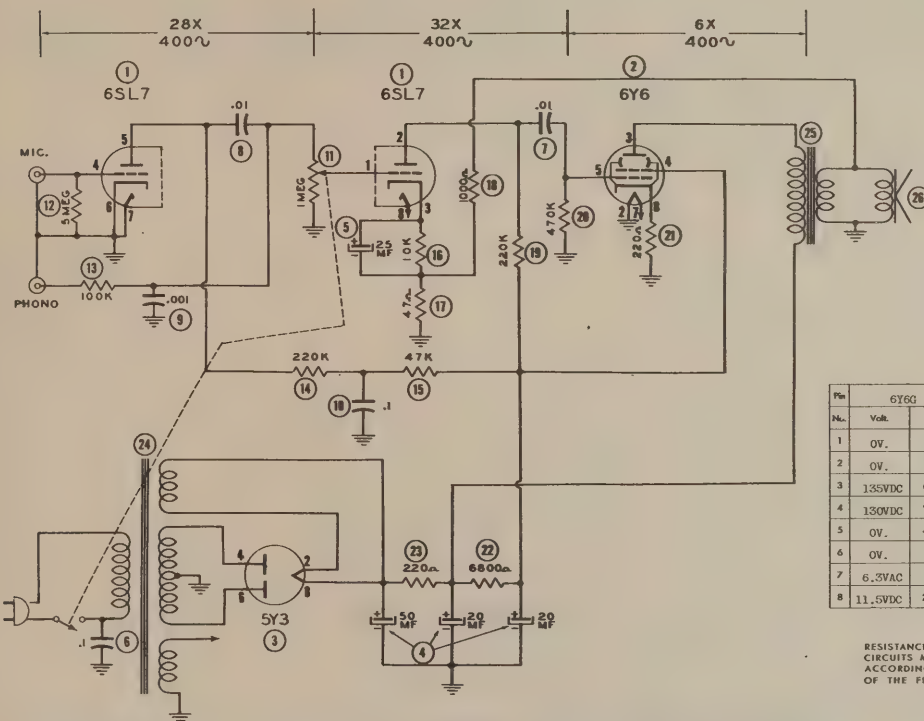
4716-5

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



AUDAR MODEL MAS-4

TRADE NAME Audar Model MAS-4 ("Bingo Amplifier")
MANUFACTURER Audar, Inc., Argos, Indiana
TYPE SET AC Operated 2 Channel Amplifier with Speaker
TUBES (THREE) Types, 6SL7GT AF Amp., 6Y6G Power Output, 5Y3GT Rectifier.
POWER SUPPLY 110-120 Volts AC **RATING** .370 Amp. @ 117 Volts AC



MICROPHONE NOT CONNECTED.

6SL7GT		
No.	Volt.	Res.
1	0V.	1.2 MEG.
2	87VDC	280KΩ
3	1.5VDC	10KΩ
4	0V.	0Ω
5	15VDC	330KΩ
6	0V.	0Ω
7	0V.	0Ω
8	6.3VAC	.1Ω

Pin	6Y6G		5Y3GT	
No.	Volt.	Res.	Volt.	Res.
1	0V.	INF.	0V.	INF.
2	0V.	0Ω	165VDC	60KΩ
3	135VDC	60KΩ	6.5VAC	.1Ω
4	130VDC	70KΩ	170VAC	100Ω
5	0V.	480K	0V.	INF.
6	0V.	INF.	170VAC	110Ω
7	6.3VAC	.1Ω	0V.	INF.
8	11.5VDC	220Ω	165VDC	60KΩ

RESISTANCE READINGS IN THE B1
 CIRCUITS MAY VARY WIDELY
 ACCORDING TO THE CONDITION
 OF THE FILTER CAPACITORS

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4716-6

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

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DATE 10/47 SET #26 FOLDER #4716-6

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		AUDAR PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Pre-Amp. Audio	6SL7GT	6SL7GT	6BD	
2	Power Output	6X6G	6X6G	7AC	
3	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	AUDAR PART No.	CORNELL-DUBIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.		AEROVOX PART No.
4A	50	150		E242215	TN129	DSB-403020-150	TA-530	FRS150-50-	Filter - Red
B	20	150						30	" - White
C	20	150							" - "
5	25	125						FRS150-20	Cathode Bypass
6	.01	400	BR252A	TC26	M-25-25	TA-25	PR825-25	484-1	Line Filter
7	.01	400	TP428	TP428	MFH-4-1	TC-11	TC-11	684-01	Audio Coupling
8	.01	600	TP651	TP651	S-6-01	TC-11	TC-11	684-01	Tone Compensation
9	.001	600	TP410	TP410	S-6-001	TC-21	TC-21	684-001	Preamp. Plate Decoupl.
10	.1	400	TP428	TP428	S-4-1	TC-11	TC-11	484-1	

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AUDAR PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
11A	1 Meg. Shaft Switch		M853 Not Req.	D13-137 A 41	M-63-Z Not Req. SW-A	Volume Control Attach to IIA per Instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		AUDAR PART No.	MALLORY PART No.	IRC PART No.	SPRAGUE PART No.	
12	5 Meg.			BTS-100K		Brn.-Blk.-Grn. Pre-Amp. Grid
13	100K2			BTS-220K		Br.-Blk.-Yl. Pre-Amp. Plate Load
14	220K2			BTS-47K		Yl.-Vi.-Or. Voltage Dropping
15	47K3			BTS-10K		Br.-Blk.-Or. AF Cathode
16	10K3			BW-1-47		Yl.-Vi.-Blk. AF Cathode
17	472			BTS-1000		Br.-Blk.-Red Feedback
18	10002			BTS-220K		Red-Red-Yl. AF Plate Load
19	220K2			BW-1-220		Yl.-Vi.-Yl. Output Grid
20	470K2			BW-1-220		Red-Red-Br. Output Cathode
21	2203			BW-1-220		Blue-Gray-Red Filter
22	68002			BW-1-220		Red-Red-Br. Filter
23	2203			BW-1-220		

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA				MERIT PART No.
		AUDAR PART No.	MALLORY PART No.	IRC PART No.	SPRAGUE PART No.	
24	117VAC 340VCT 4.8VAC 6.3VAC @ .37A @ .056A @ 2A @ 1.6A				P-62891#	

Use universal mounting brackets. #Add series resistor to reduce plate voltage.

TRANSFORMER (OUTPUT)

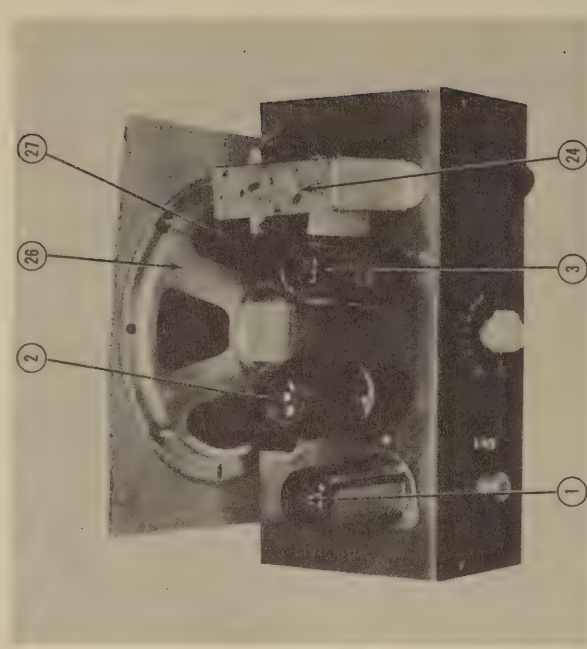
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AUDAR PART No.	MALLORY PART No.	IRC PART No.	SPRAGUE PART No.	
25	IMPEDANCE PRI. SEC. DC RES. PRI. SEC. 2500Ω 3.8Ω 350Ω .7Ω				A-3876 T22845	A-2928

SPEAKER

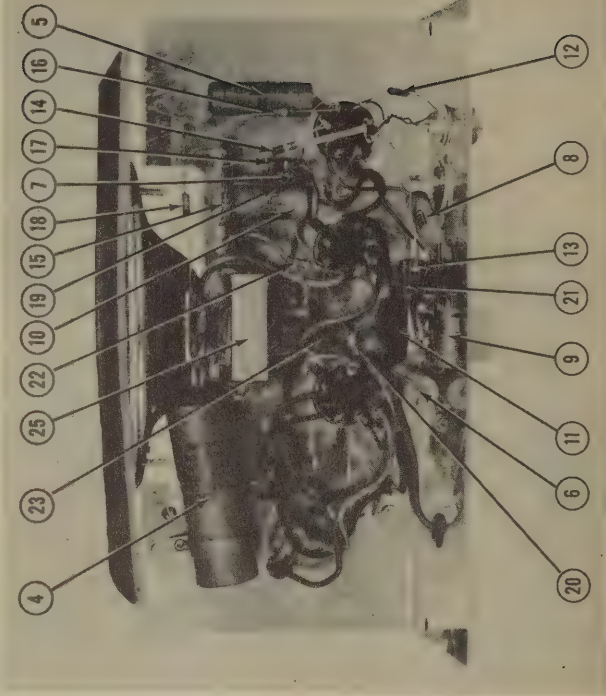
ITEM No.	RATINGS	REPLACEMENT DATA				INSTALLATION NOTES
		AUDAR PART No.	MALLORY PART No.	IRC PART No.	SPRAGUE PART No.	
26	FIELD PK VC IMP. 3.8Ω					
27	CONE DIA. VC DIA. 1 1/2"					

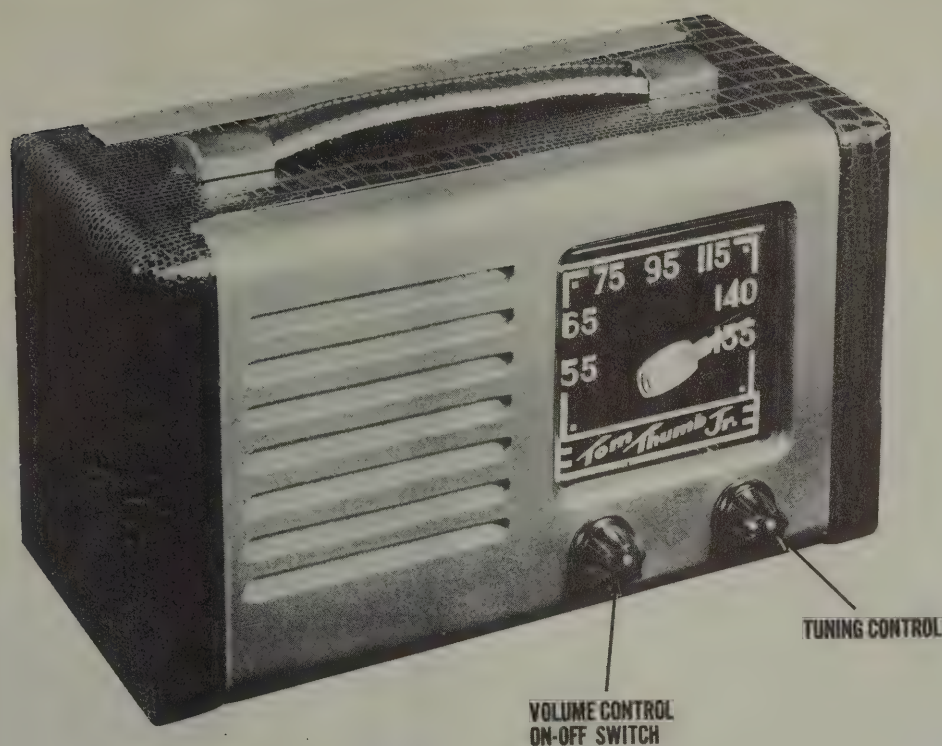
NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



AUTOMATIC TOM THUMB JR.
BATTERY OPERATEDAUTOMATIC TOM THUMB JR.
BATTERY OPERATED

AUTOMATIC MODEL TOM THUMB, JR.

TRADE NAME	Automatic, Model Tom Thumb, Jr.
MANUFACTURER	Automatic Radio Manufacturing Co., Inc., 122 Brookline Ave., Boston 15, Mass.
TYPE SET	Battery Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES(FIVE)	Types, 1R5 Converter, 1T4 1st IF Amp., 1T4 2nd IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output.
POWER SUPPLY	1½ Volt "A" Supply & 67½ Volt "B" Supply
RATING	290MA @ 1.5 Volts DC & 9 MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	538-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2		Loop	1600KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

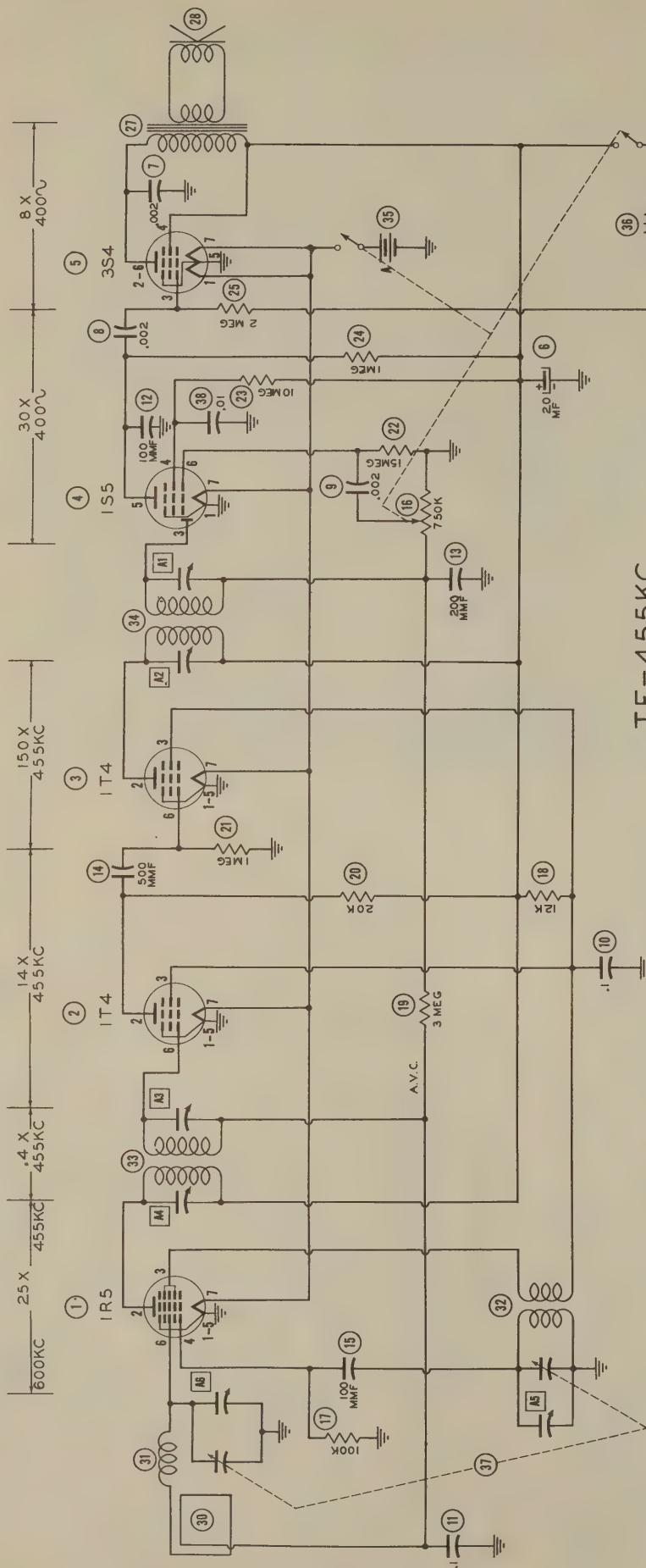
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DATE 10/47 SET 26 FOLDER #4716-7



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	OV.	58VDC	33VDC	-4.4VDC	OV.	-1VDC	1.4VDC
2	1T4	OV.	45VDC	33VDC	OV.	OV.	-1VDC	1.4VDC
3	1T4	OV.	58VDC	33VDC	-2VDC	OV.	OV.	1.4VDC
4	1S5	OV.	-2VDC	-2VDC	15VDC	27VDC	-1VDC	1.4VDC
	3S4	1.4VDC	55VDC	-9VDC	53VDC	OV.	55VDC	1.4VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	02	50K2	62K2	100K2	02	3.5 Meg.	*
2	174	02	70K2	62K2	1N.	02	3.5 Meg.	*
3	174	02	50K2	62K2	750K2	02	1 Meg.	*
4	185	02	750K2	750K2	10 Meg.	1 Meg.	15 Meg.	*
5	254	*	50K2	2 Meg.	50K2	02	50K2	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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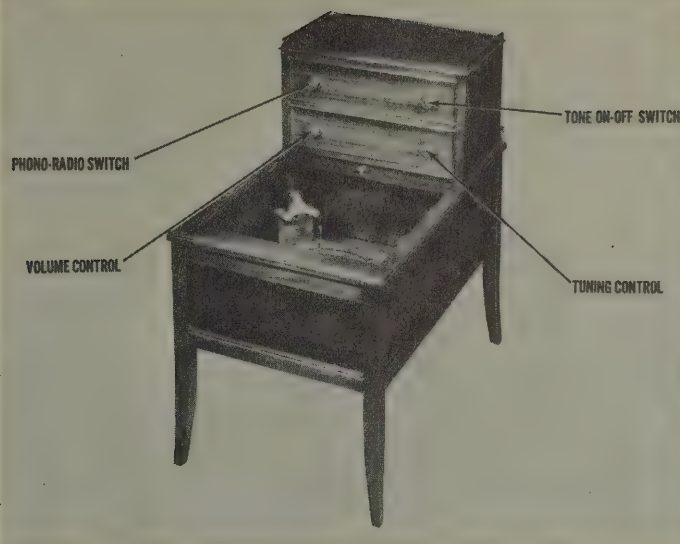
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The stage gain measured values listed above are approximate values for an average operation and that it is possible to obtain higher values for some variables and lower for others. It is possible to produce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to chassis during stage gain measurements.

- 1 - DC Voltage measurements are at 20,000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 5 - Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

**BENDIX
MODEL 697A**



BENDIX MODEL 697A

TRADE NAME Bendix, Model 697A
MANUFACTURER Bendix Radio Div. of Bendix Aviation Corp., Baltimore, Md.
TYPE SET AC Operated Phono-Radio Combination Superheterodyne with Loop Antenna
TUBES (SIX) Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 12BA6 Inverter, (2) 35B5 Power Output.

POWER SUPPLY 105-125 Volts AC
TUNING RANGE—BROADCAST 540-1620KC

RATING .360 Amp. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The reference marks referred to are stamped on the dial backplate. To set pointer turn tuning capacitor fully closed and set right edge of pointer saddle to vertical mark at the left end of dial backplate. The trimmer on the oscillator section opposite A5 is pre-set at the factory and normally need not be adjusted. If, however, the receiver will not calibrate by adjusting A5 this trimmer may also be adjusted. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	50MMFD.	High side to ext. ant. lead. Low side to chassis.	1475KC	1475KC reference mark. (1st mark from right end of dial backplate)	"	A5	Adjust for maximum output.
3	50MMFD.	"	965KC	Tune for maximum output.	"		Check calibration. Pointer should be within limits inscribed on backplate.
4	50MMFD.	"	580KC	"	"		Check calibration. Pointer should be within limits inscribed on backplate. If calibration is not within limits in Step 3 & 4 oscillator and antenna gang rotor sections must be bent.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove six wood screws holding panel to back of cabinet.
3. Unsolder leads from loop and remove panel from cabinet.
4. Remove two wood screws holding dial slide assembly to cabinet.
5. Remove four wood screws holding chassis mounting board in cabinet. Slide chassis and mounting board out back of cabinet.
6. Remove three hex head screws holding chassis to mounting board. Remove chassis from mounting board.
7. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.

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DATE 10/47 SET 26 FOLDER #4716-8

**BENDIX
MODEL 697A**

**BENDIX
MODEL 697A**

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

BENDIX
MODEL 697A

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		BENDIX PART No.	STANDARD REPLACEMENT		
1	Converter	12SE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Inverter	12BA6	12BA6	7BK	
5	Power Output	35B5	35B5	7BZ	
6	"	35B5	35B5	7BZ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		BENDIX PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	CAP. 150	CE3F00	2N511	7DSB-2x40-150	7TA-440	7FSA150-40-40	Filter - Blue
7B	40 150						" - Red
7C	40 150						" - Green
8	.05 400	CP4T40	TP426	X-40-150	UT-401	CPRS150-40	Line Filter
9	.006 400	CP4T20	TP426	MPH-4-05	TC-15	484-05	Output Plate Bypass
10	.04 400	CP4T30	TP426	S-6-006	TC-28	484-006	Tone Compensation
11	.04 400	CP4T30	TP426	S-6-04	TC-14	484-03	Feedback
12	.25 200	CP4T30	TP426	S-4-25	TC-2	484-25	Audio Coupling
13	.01 400	CP4T31	TP421	S-4-01	TC-11	484-01	"
14	.006 400	CP4T20	TP426	S-6-006	TC-26	484-006	Phono Isolation
15	.1 400	CP4T31	TP428	S-4-1	TC-1	484-1	AVC Filter
16	.1 400	CP4T31	TP428	S-4-2	TC-2	484-2	Line Isolation
17	.006 400	CP4T30	TP426	M-5-335	TC-25	484-006	Ext. Ant. Isolation
18	220 500	CP4T30	TP426	1FM-225	1FM-225	1468-00025	AF Plate Bypass
19	47 500	CP4T30	TP426	M-5-45	1FM-45	1468-00005	OSC. Grid

†Do not use bypass section.

CONTROLS

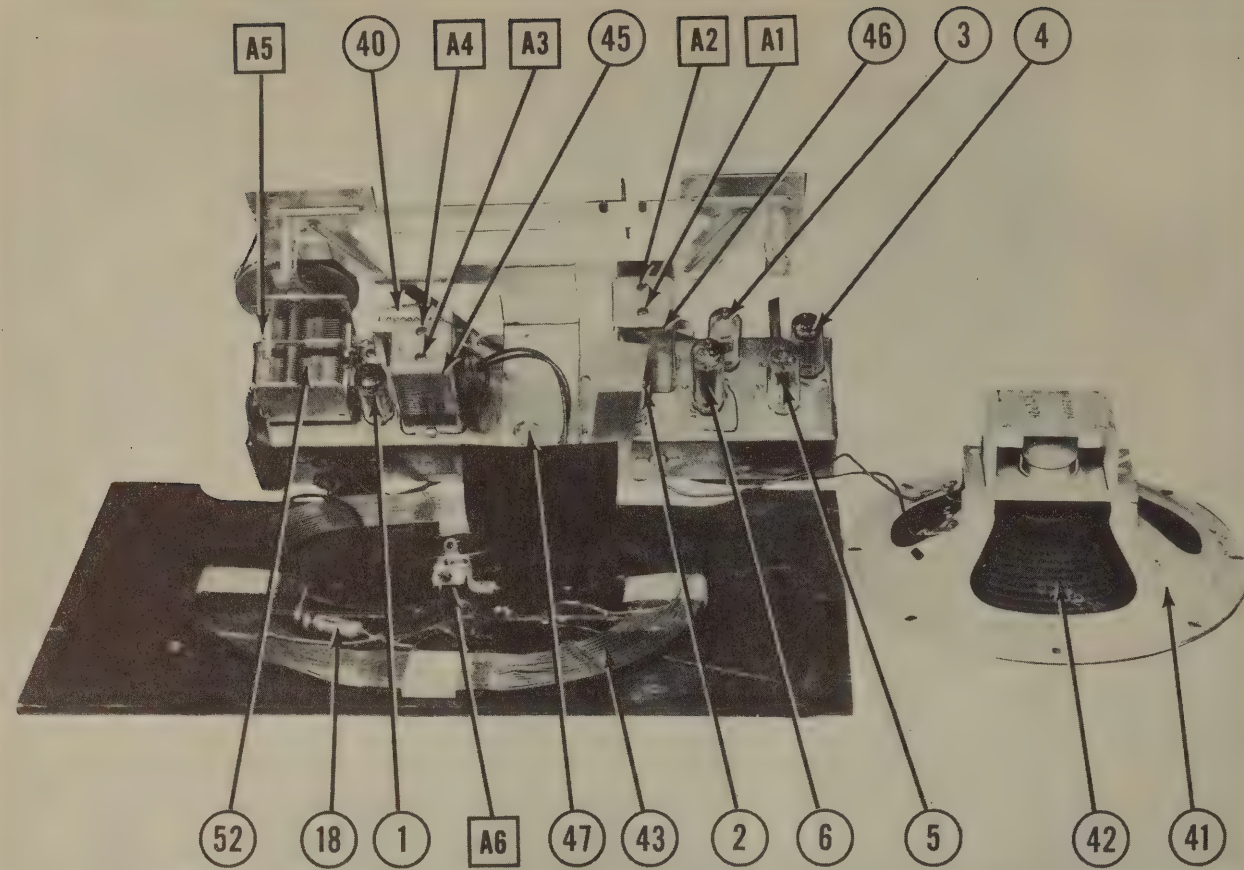
ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		BENDIX PART No.	MALLORY PART No.	CLAROSTAT PART No.	
21A	500K Ω 1/2 Shaft	RV0001	YF48	D13-133	Volume Control
B		Not Req.	Not Req.	M-60-2	Attach to 21A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		BENDIX PART No.	IRC PART No.	
22	220K Ω	RC1H54	BTS-220K	Red-Red-Yl. Line Isolation
23	22K Ω	RC1H40	BTS-22K	Red-Red-Or. Oscillator Grid
24	15 Meg.	RC1H76	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
25	100 Ω	RC1G12	BW-100	Br.-Blk.-Br. Decoupling
26	3.3 Meg.	RC1H68	BTS-3.3 Meg.	Or.-Or.-Grn. AF Network
27	4.7 Meg.	RC1H70	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
28	220K Ω	RC1H54	BTS-220K	Red-Red-Yl. AF Plate Load
29	100 Ω	RC1H12	BW-100	Br.-Blk.-Br. AF Cathode
30	100K Ω	RC1H24	BTS-100K	Br.-Blk.-Red Feedback
31	100K Ω	RC1G51	BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load
32	100K Ω	RC1G51	BTS-100K	Br.-Blk.-Yl. Phase Inverter Grid
33	470K Ω	RC1G58	BTS-470K	Yl.-Vi.-Yl. Output Grid
34	470K Ω	RC1G58	BTS-470K	Yl.-Vi.-Yl.
35	100 Ω	RC1B12	BW-100	Br.-Blk.-Br. Output Cathode
36	12K Ω	RC1G37	BTS-12K	Br.-Red-Or. Feedback
37	1500 Ω	RC4G26	BT-2-1500	Br.-Grn.-Red Filter
38	100 Ω	RC4H12	BW-2-100	Br.-Blk.-Br.
39	33 Ω	RC1B06	BW-1-33	Or.-Or.-Blk. Surge Limiter

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		BENDIX PART No.	STANCOR PART No.	THORDARN PART No.	
40	IMPEDANCE 3.4 Ω Feed-Back	TA0008			



PARTS LIST AND DESCRIPTIONS (Continued)
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	BENDIX PART No.	JENSEN PART No.			
41	FIELD PM	VC IMP.	ST-116		
42	COMP DIA.	3.4Ω	SPOR00	Mod. PS-U	
	VC DIA.	3/4"	NOT READILY REPLACIBLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	BENDIX PART No.	MEISSNER PART No.
43	Loop Ant.	.1Ω	1.5Ω	ALOZ09	
44	Osc. Coil	.5Ω	6Ω	LO5S01	14-1040
45	Input IF	22Ω	22Ω	TI0C08	16-6858
46	Output IF	22Ω		TI0D11	16-6870

DIAL LIGHT

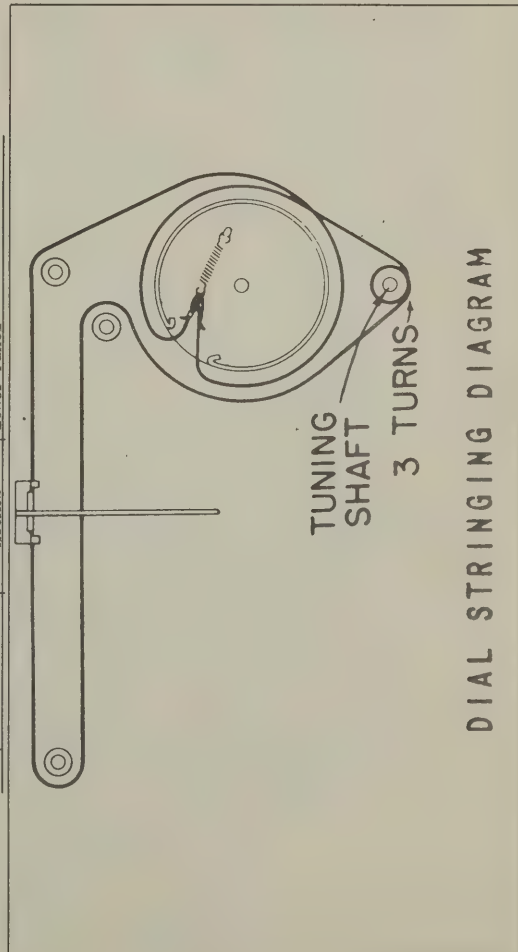
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	BENDIX PART No.	
47	Screw	120	.05			Type C7

PHONO CARTRIDGE

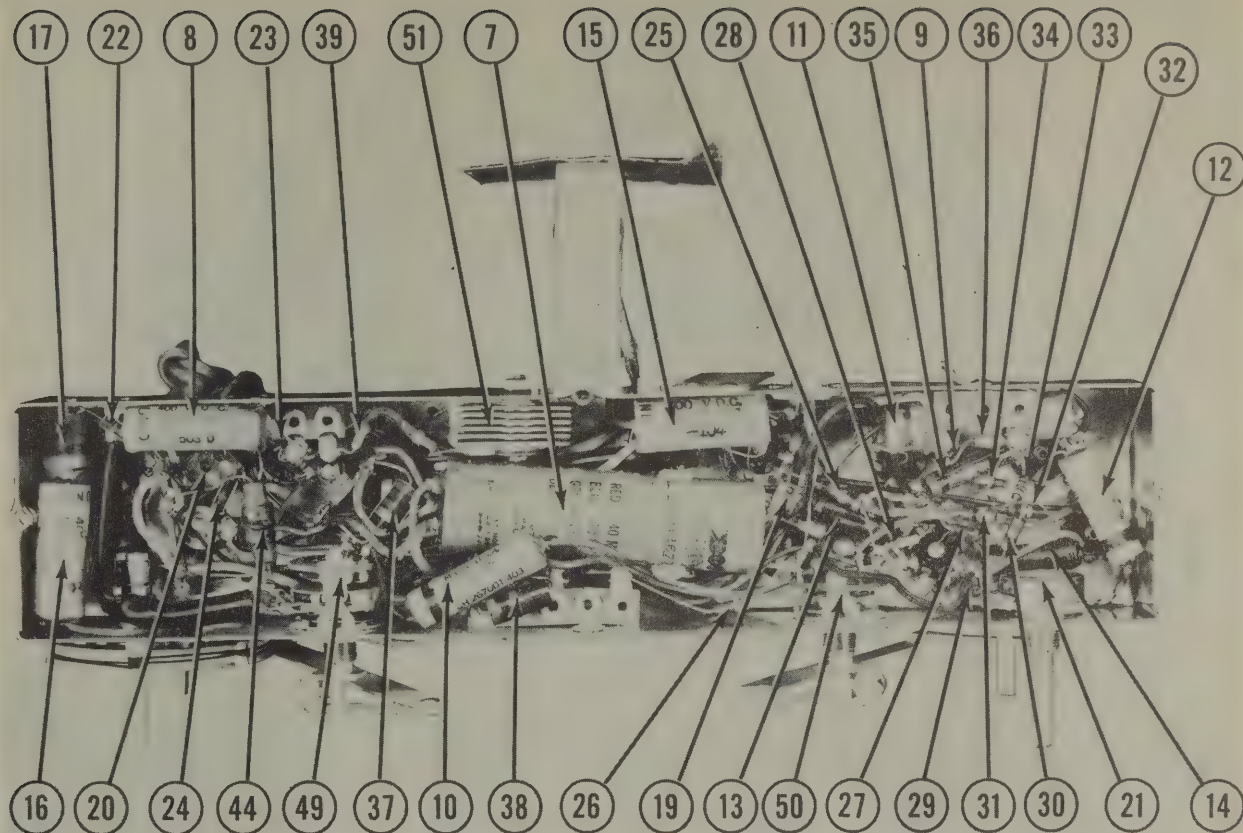
ITEM No.	REPLACEMENT DATA		REMARKS
	BENDIX PART No.	ASTATIC PART No.	
48		L-70	

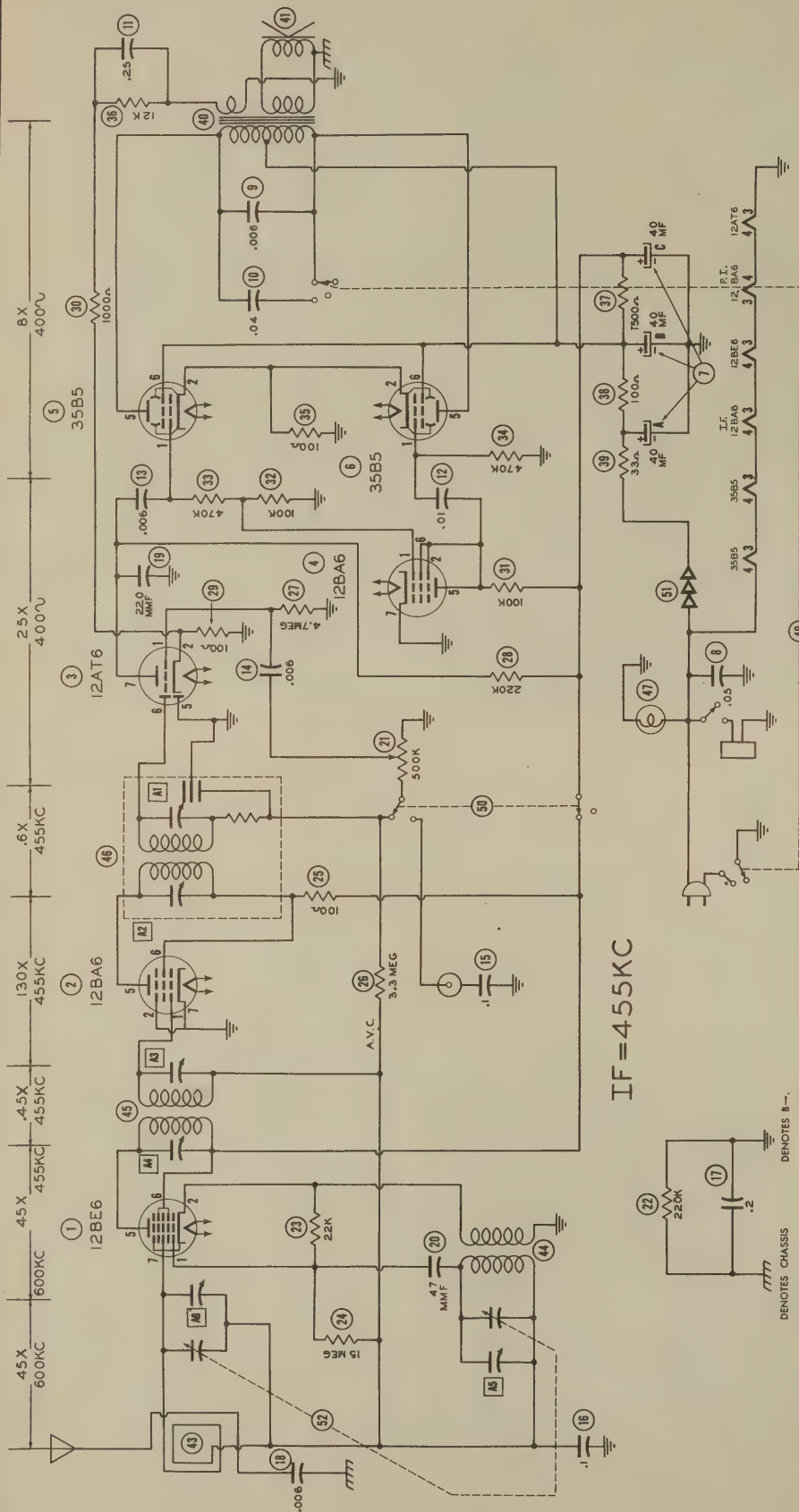
MISCELLANEOUS

ITEM No.	PART NAME	BENDIX PART No.	NOTES
49	Switch	SR3M00	Tone & Power
50	Rectifier	SR2B01	Radio-Phono
51	2 Gang Var. Cap	QRO500	Selenium
52	Trimmer Cap.	CV0B04	20-425MUF, 21-200MUF
A6	Knob	CT1A16	Ant Adj. (1.6-18MUF)
		KY0M00	Control
		KY0M02	Lower Panel



CHASSIS—BOTTOM VIEW





IF=455KC

DENOTES CHASSIS

DENOTES B+

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-6.4VDC	OV.	24VAC	35VAC	85VDC	85VDC	-5VDC
2	12BA6	-5VDC	OV.	35VAC	48VAC	83VDC	83VDC	OV.
3	12AT6	-5VDC	OV.	OV.	12VAC	OV.	-5VDC	41VDC
4	12BA6	OV.	14VDC	24VAC	12VAC	14VDC	14VDC	OV.
5	35B5	OV.	7.2VDC	48VAC	82VAC	110VDC	115VDC	OV.
6	35B5	OV.	7.2VDC	82VAC	117VAC	110VDC	115VDC	OV.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFAC STANDARD NOTATION SCHEMATIC
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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

RADIO-PHONO SWITCH IN RADIO POSITION.

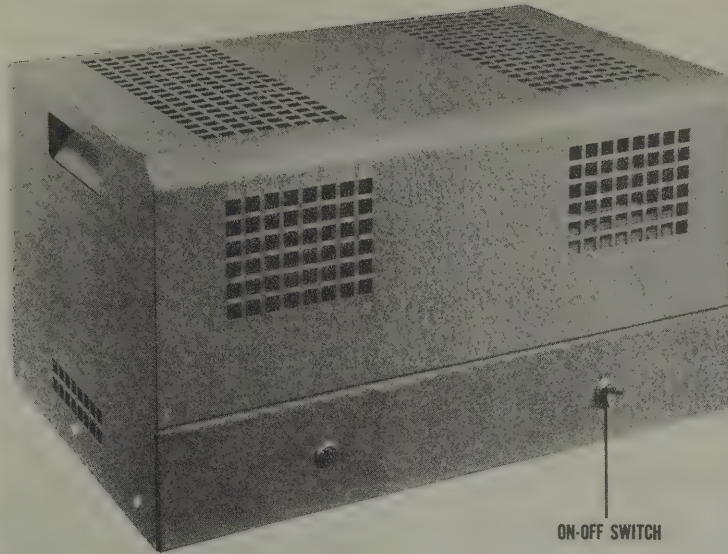
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	20KΩ	.5Ω	21Ω	32Ω	50KΩ	50KΩ	3.3 MΩ
2	12BA6	3.3 MΩ	Ω	32Ω	40Ω	30KΩ	30KΩ	Ω
3	12AT6	5 MΩ	100Ω	Ω	11Ω	Ω	40KΩ	250KΩ
4	12BA6	100KΩ	120KΩ	21Ω	11Ω	130KΩ	130KΩ	Ω
5	35B5	540KΩ	100Ω	40Ω	60Ω	50KΩ	30KΩ	540KΩ
6	35B5	500KΩ	100Ω	60Ω	60Ω	30KΩ	30KΩ	500KΩ

TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4716-8

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



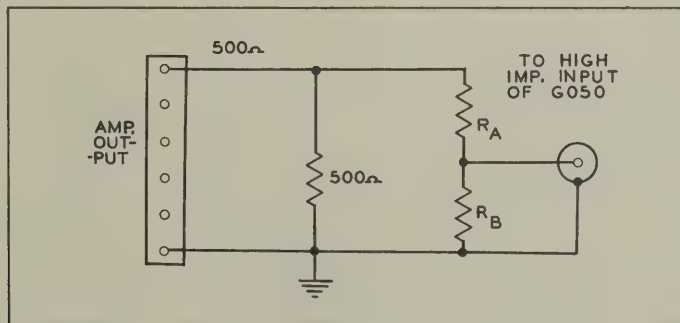
DAVID BOGEN MODEL GO-50

TRADE NAME	David Bogen, Model GO-50		
MANUFACTURER	David Bogen Co., Inc., 663 Broadway, New York 12, N.Y.		
TYPE SET	AC Operated 6 Tube Booster Amplifier		
TUBES (SIX)	Types, 6SL7GT AF Phase Inv., 6SN7GT Driver, (2) 807 Power Output, 5Y3GT Rectifier, 5R4GY Rectifier.		
POWER SUPPLY	110-120 Volts AC	RATING	.800 Amps. @ 117V AC

BOOSTER DRIVE

The GO-50 can be driven by connection to a tap in the Bogen G-50 and GX-50 amplifiers, as shown on the schematics of these equipments. In addition the GO-50 can be driven by any amplifier which can develop a 2.5 volt signal with a low hum level across a 500,000 ohm load.

The recommended circuit to be used for amplifiers with a 500 ohm output is shown in Fig. 1. The 500 ohm resistor should have sufficient rating to dissipate the full output of the amplifier. An equivalent loudspeaker load may be used in place of the 500 ohm resistor.



The ratio of R_a to R_b is calculated to give approximately 2.5 volts across R_b when the driver amplifier is delivering about two-thirds of its rated output across the 500 ohm load. The values of R_a and R_b should be great enough so that at the full rated output voltage of the driver the power dissipated in R_a or R_b is not greater than 1/4 watt. Standard 1/2 watt resistors may then be used.

Recommended values of R_a and R_b for use with standard Bogen amplifiers to drive the GO-50 are given in the follow table:

DRIVER	R_a	R_b	DRIVER	R_a	R_b
E10	22K	1K	LLO and HLO	R_a and R_b built in.	
E14	27K	1K			
E30	68K	1.8K	Any amplifier with RMA		
EX35	82K	2.2K	standard 70 volt output.	22K	1K

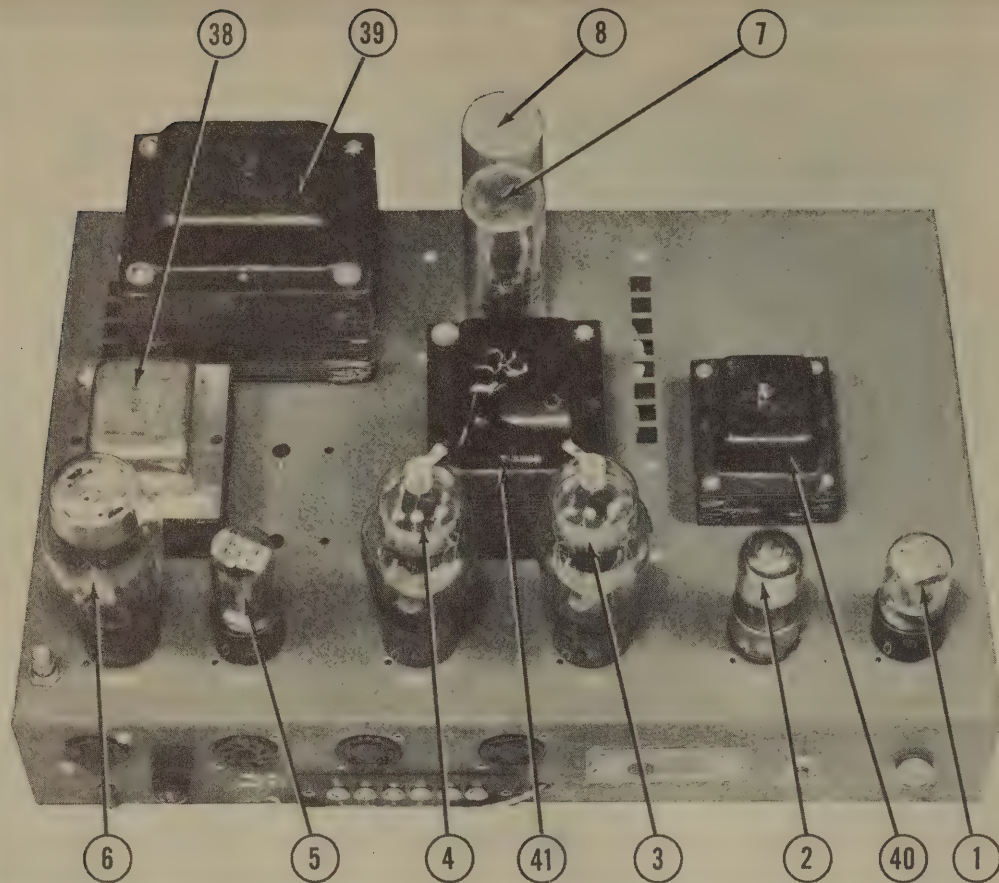
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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

CHASSIS—TOP VIEW



ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		DAVID BOGEN PART No.	STANDARD REPLACEMENT		
1	AF-Phase Inv.	6SL7GT	6SL7GT	9BD	
2	Driver	6SN7GT	6SN7GT	24D	
3	Power Output	807	807	T-5-B	
4	Rectifier	5Y3GT	5Y3GT	5Y	
5	"	5R4GY	5R4GY	5Y	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		DAVID BOGEN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
7A	500			D-2X8-450	CL-88	GLS450-8-8	Filter - Blue
8	450						"
9	450						"
10	50						Bias Filter
11	50						Cathode Bypass
12	25						"
13	25						"
14	400						Line Filter
15	500						Opt. Split
16	500						Audio Coupling
17	500						"
18	500						"
19	500						Tone Cc. P.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		DAVID BOGEN PART No.	MALLORY PART No.	CLAROSTAT PART No.	
20A	500KΩ		MR42	D13-133	Volume Control
B	Shaft			Not Req.	Attach to 20A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		DAVID BOGEN PART No.	IRC PART No.	
21	40KΩ		BTS-33K	Yl.-Blk.-Or. Isolation
22	470Ω		BTS-470	Yl.-Vi.-Br. AF Cathode
23	3000Ω		BTS-3300	Or.-Blk.-Red AF Cathode
24	240KΩ		BTS-270K	Red-Yl.-Yl. AF Plate Load
25	240KΩ		BTS-270K	Red-Yl.-Yl. Phase Inverter Plate Load
26	3900Ω		BTS-3900	Or.-White-Red Phase Inverter Cathode
27	240KΩ		BTS-220K	Red-Yl.-Yl. Phase Inverter Cathode
28	100KΩ		BTS-100K	Br.-Blk.-Yl. Phase Inverter Grid
29	10KΩ		BTS-10K	Br.-Blk.-Or. Decoupling
30	1 Meg.		BTS-1 Meg.	Br.-Blk.-Gm. Driver Grid
31	1 Meg.		BTS-1 Meg.	Br.-Blk.-Gm. Driver Grid
32	1500Ω		BTS-1500	Br.-Gm.-Red Driver Cathode
33	1500Ω		BTS-1500	Br.-Gm.-Red Driver Cathode
34	47KΩ		BTS-47K	Yl.-Gm.-Red Driver Cathode
35A	10KΩ		EP-50K	Yl.-Vi.-Or. Feedback Bleeder
35B	40KΩ			"
36	1000Ω		DHa-1000	Bias Adjustment

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0.10000)	DAVID BOGEN PART No.	
37	.062A	190Ω	5.5 Henries	T501B	#Drill one new mounting hole.
38	.15A	50Ω	2.5 Henries	T510B	

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC.	DAVID BOGEN PART No.	STANCOR PART No.	
39	117V AC 1600V CT ①.8A	SEC. 1 1120V CT ①.15A	SEC. 2 1120V CT ①.062A	SEC. 3 1120V CT ①.062A	#Drill one new mounting hole.

TRANSFORMER (DRIVER)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	INDUCTANCE	DC RES.	DAVID BOGEN PART No.	STANCOR PART No.	
40	10 Henries CT	140Ω CT	T119B	T20078*	*Connect primary only.

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	DAVID BOGEN PART No.	STANCOR PART No.	
41	1300Ω CT	45Ω 82Ω 15Ω 70VH 140Ω	T256E	T25721	#Drill new mounting holes. *Constant voltage output windings.

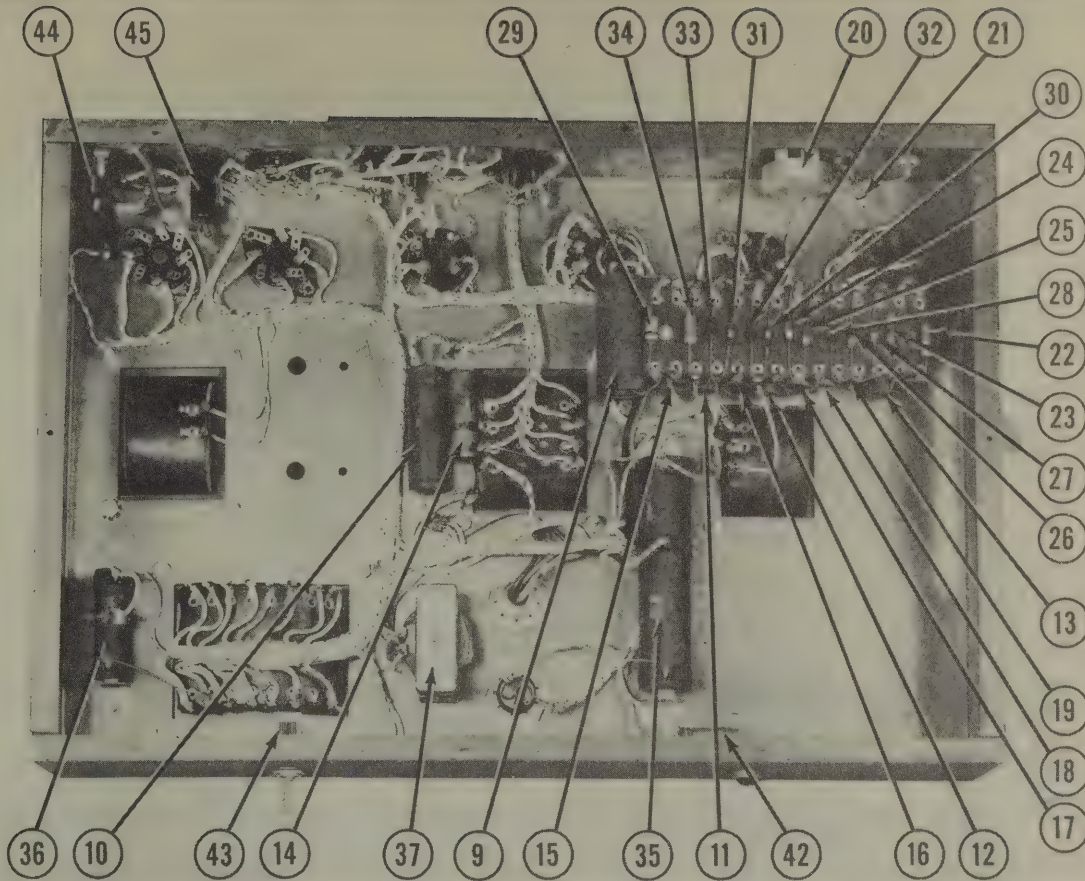
DIAL LIGHT

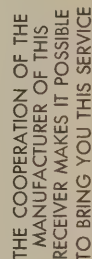
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	DAVID BOGEN PART No.	
42	Bayonet	5-8	0.25	Blue	Type 44	

MISCELLANEOUS

ITEM No.	PART NAME	DAVID BOGEN PART No.	NOTES
43	Switch		On-Off
44	"		Safety Interlock
45	Fuse		5 Amp.

CHASSIS—BOTTOM VIEW





1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Pin	5Y20T		5843Y	
	Volt.	Res.	Volt.	Res.
1	OV.	1N ⁵ .	OV.	1N ⁵ .
2	310VDC	10K ²	470VDC	40K ²
3	OV.	1N ⁵ .	OV.	OV.
4	300VAC	660 Ω	580VAC	38K ²
5	OV.	1N ⁵ .	OV.	1N ⁵ .
6	300VAC	660 Ω	580VAC	35K ²
7	OV.	OV.	OV.	1N ⁵ .
8	310VDC	10K ²	470VDC	4K ²

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS



DE WALD MODEL A-507

TRADE NAME	De Wald, Model A-507
MANUFACTURER	De Wald Radio Mfg. Corp., 35-28 49th St., New York, N.Y.
TYPE SET	Three Power Portable Superheterodyne with Loop Antenna
TUBES(FIVE)	1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3V4 Power Output, 35W4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC or 9V "A" Supply and 90 Volt "B" Supply
RATING	.260 Amps. @ 117V AC or 54MA @ 9V DC and 9MA @ 90V DC
TUNING RANGE—BROADCAST	540-1700KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with the low side of the signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MFD. to reduce hum modulation.
2 200MMFD.	High side to ext. ant. lead. Low side to ext. ground lead.	1700KC	"	"	A5	Adjust for maximum output.
3 200MMFD.	"	1500KC	Tune for maximum output.	"	A6	" " " "

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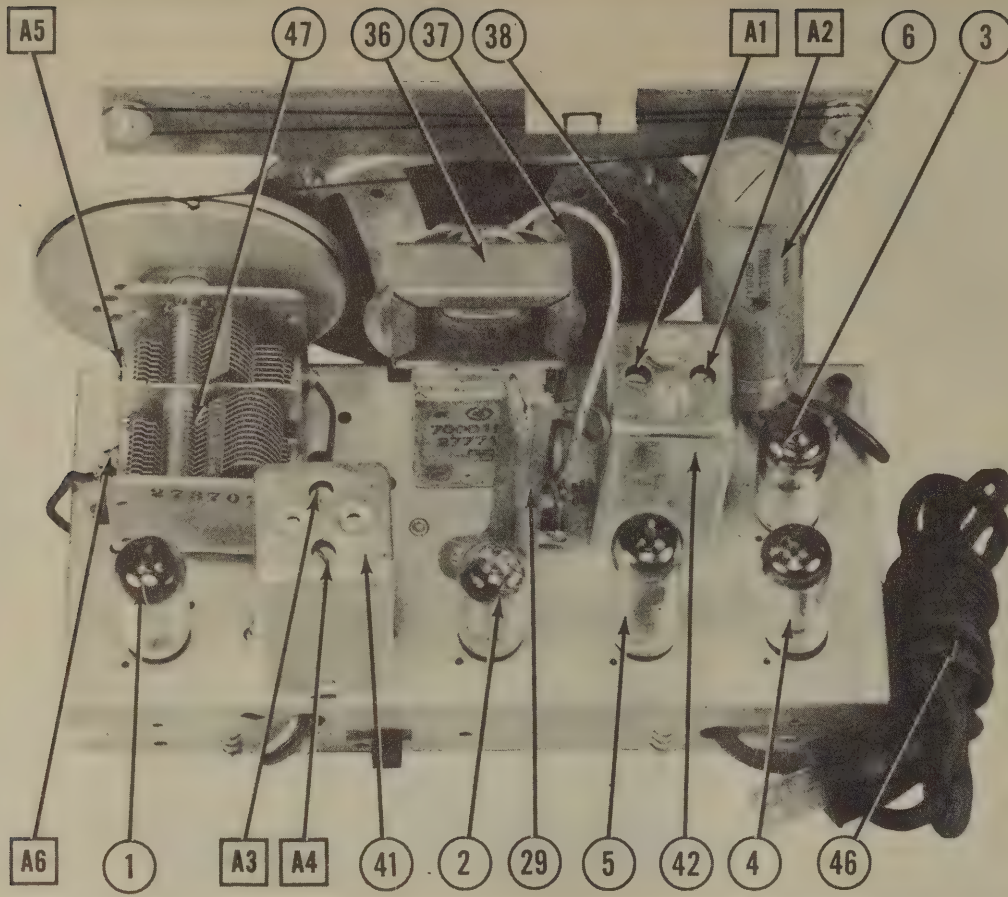
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DATE 10/47 SET #26 FOLDER #4716-10

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

DE WALD MODEL A-507
BATTERY OPERATED

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		DE WALD PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
1	150	2N521	2N521	2N521	2N521	Filter—Yellow
2	150	2N521	2N521	2N521	2N521	Filter—Yellow
3	150	2N521	2N521	2N521	2N521	Filter—Yellow
4	150	2N521	2N521	2N521	2N521	Filter—Yellow
5	150	2N521	2N521	2N521	2N521	Filter—Yellow
6	150	2N521	2N521	2N521	2N521	Filter—Yellow
7	150	2N521	2N521	2N521	2N521	Filter—Yellow
8	150	2N521	2N521	2N521	2N521	Filter—Yellow
9	150	2N521	2N521	2N521	2N521	Filter—Yellow
10	150	2N521	2N521	2N521	2N521	Filter—Yellow
11	150	2N521	2N521	2N521	2N521	Filter—Yellow
12	150	2N521	2N521	2N521	2N521	Filter—Yellow
13	150	2N521	2N521	2N521	2N521	Filter—Yellow
14	150	2N521	2N521	2N521	2N521	Filter—Yellow
15	150	2N521	2N521	2N521	2N521	Filter—Yellow
16	150	2N521	2N521	2N521	2N521	Filter—Yellow
17	150	2N521	2N521	2N521	2N521	Filter—Yellow
18	150	2N521	2N521	2N521	2N521	Filter—Yellow

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		DE WALD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
1	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
2	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
3	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
4	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
5	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
6	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
7	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
8	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
9	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
10	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
11	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
12	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
13	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
14	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
15	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
16	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
17	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note
18	1 Meg.	3006	MF53	D13-137	AM-63-Z	Volume Control—See Note

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		DE WALD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
1	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Vl. Oscillator Grid
2	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Blue AVC Network
3	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
4	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
5	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
6	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
7	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
8	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
9	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
10	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
11	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
12	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
13	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
14	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
15	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
16	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
17	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
18	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping

NOTE 1—On IRC replacement set slider at 75K from one end.
NOTE 2—Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		DE WALD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
1	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Vl. Oscillator Grid
2	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Blue AVC Network
3	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
4	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
5	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
6	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
7	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
8	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
9	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
10	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
11	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
12	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
13	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
14	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
15	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
16	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
17	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping
18	100K	2N521	2N521	2N521	2N521	Br.—Blk.—Or. Screen Dropping

*Bend mounting tabs down, file out slots and mount on original bracket.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		DE WALD PART No.	JENSEN PART No.	
37	FIELD PM 3-50		ST-105† Mod. P5-X	†Drill and tap magnet frame
38	CONE DIA. 4-3/4"			NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT.

R F COILS

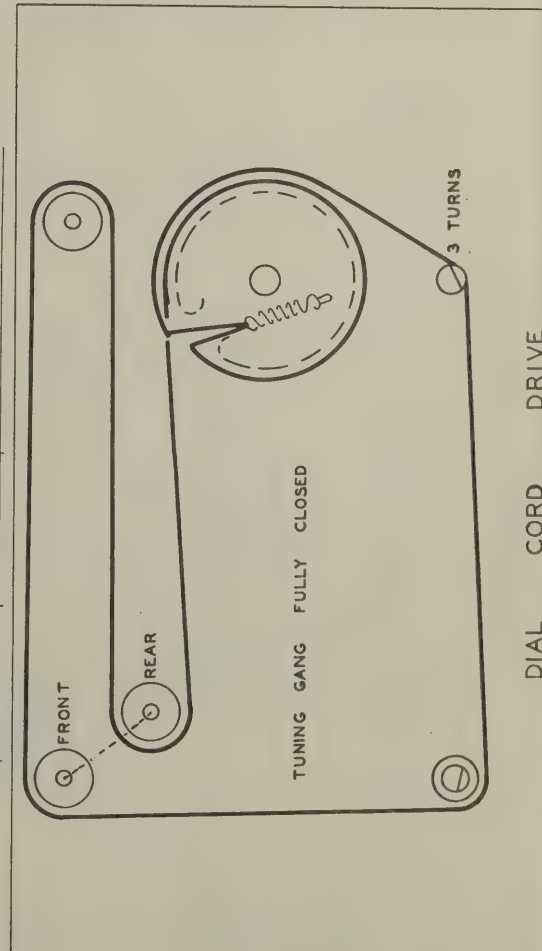
ITEM No.	USE	REPLACEMENT DATA	
		DC RES.	DE WALD PART No.
39	Loop Ant.	PRI.	1021
40	Osc. Coil	SEC.	1020
41	Input IF	242	1019-1
42	Output IF	262	1019-2

BATTERIES

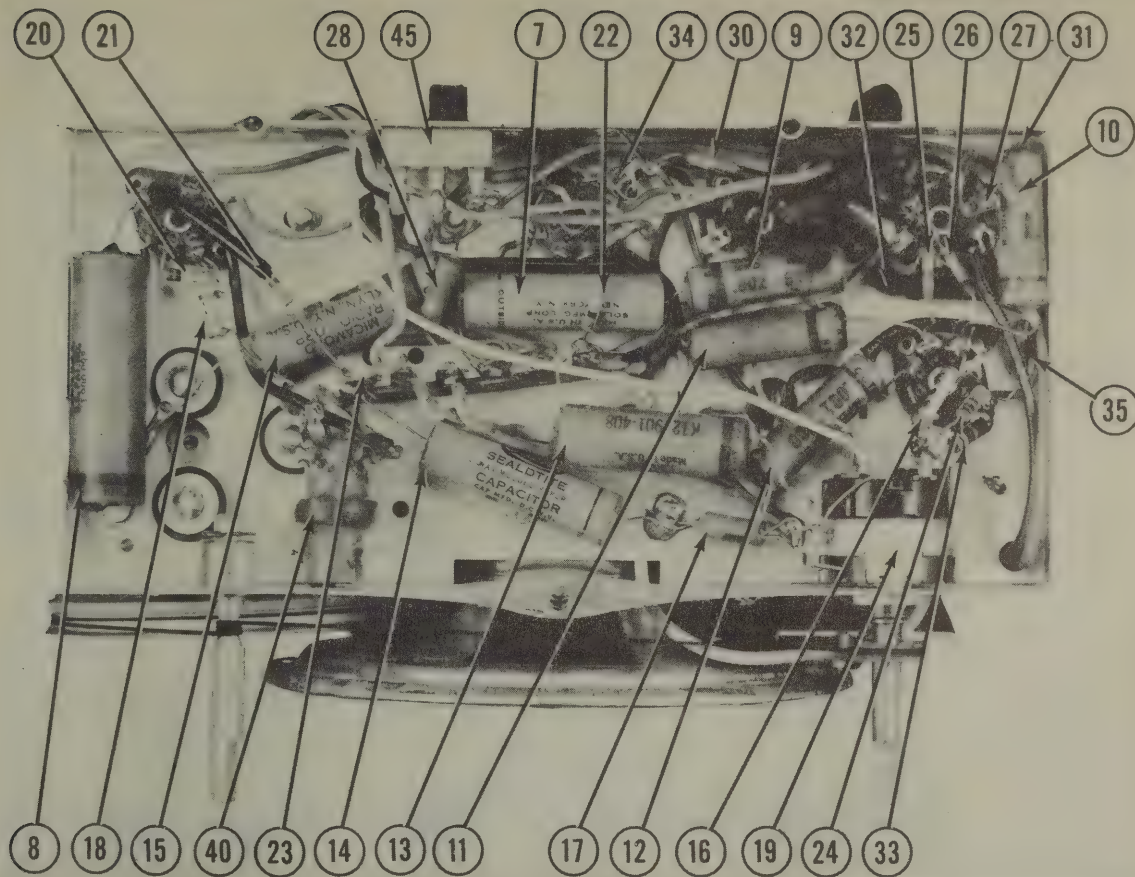
ITEM No.	VOLTAGE	DE WALD PART No.	EVEREADY		INSTALLATION NOTES
			"A"	"B"	
43	9V "A"		(2) #746		2 used in series
44	90V "B"			(2) #482	

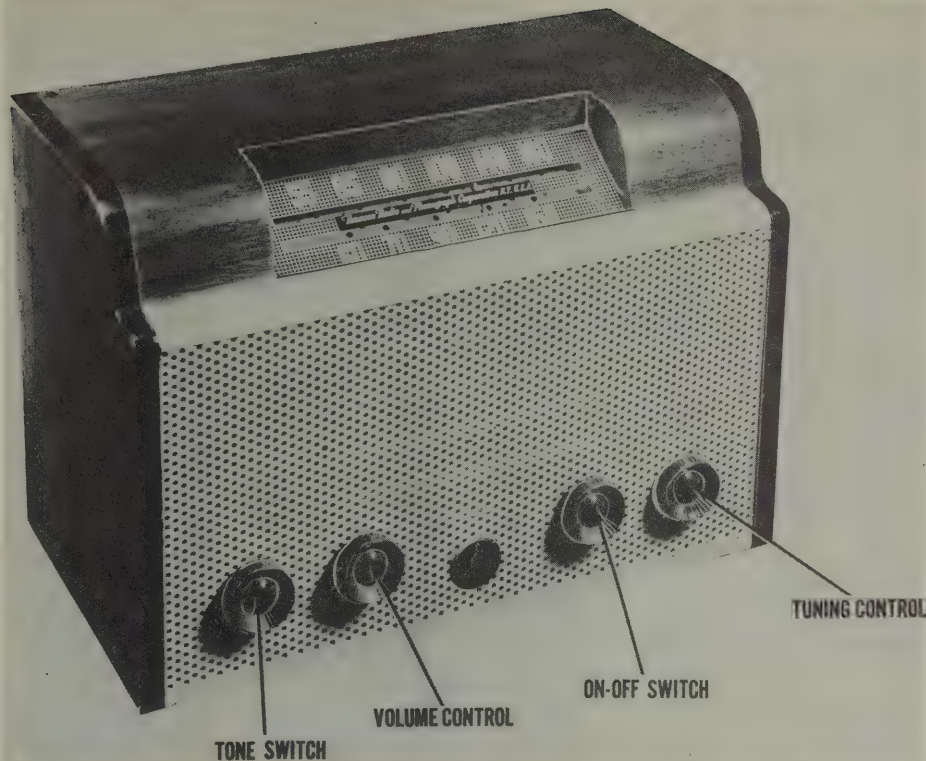
MISCELLANEOUS

ITEM No.	PART NAME	DE WALD PART No.	NOTES
45	Switch	8019	Power
46	Line Cord	5002	5502
47	2 Gang Var. Cap	2003	20-456MMF, 23-188MMF
	Battery Cable	5003	
	Dial Scale	9001	
	"Knob	4044-1	Plain Indicator
	Pointer	4044-2	
		9025	



CHASSIS—BOTTOM VIEW





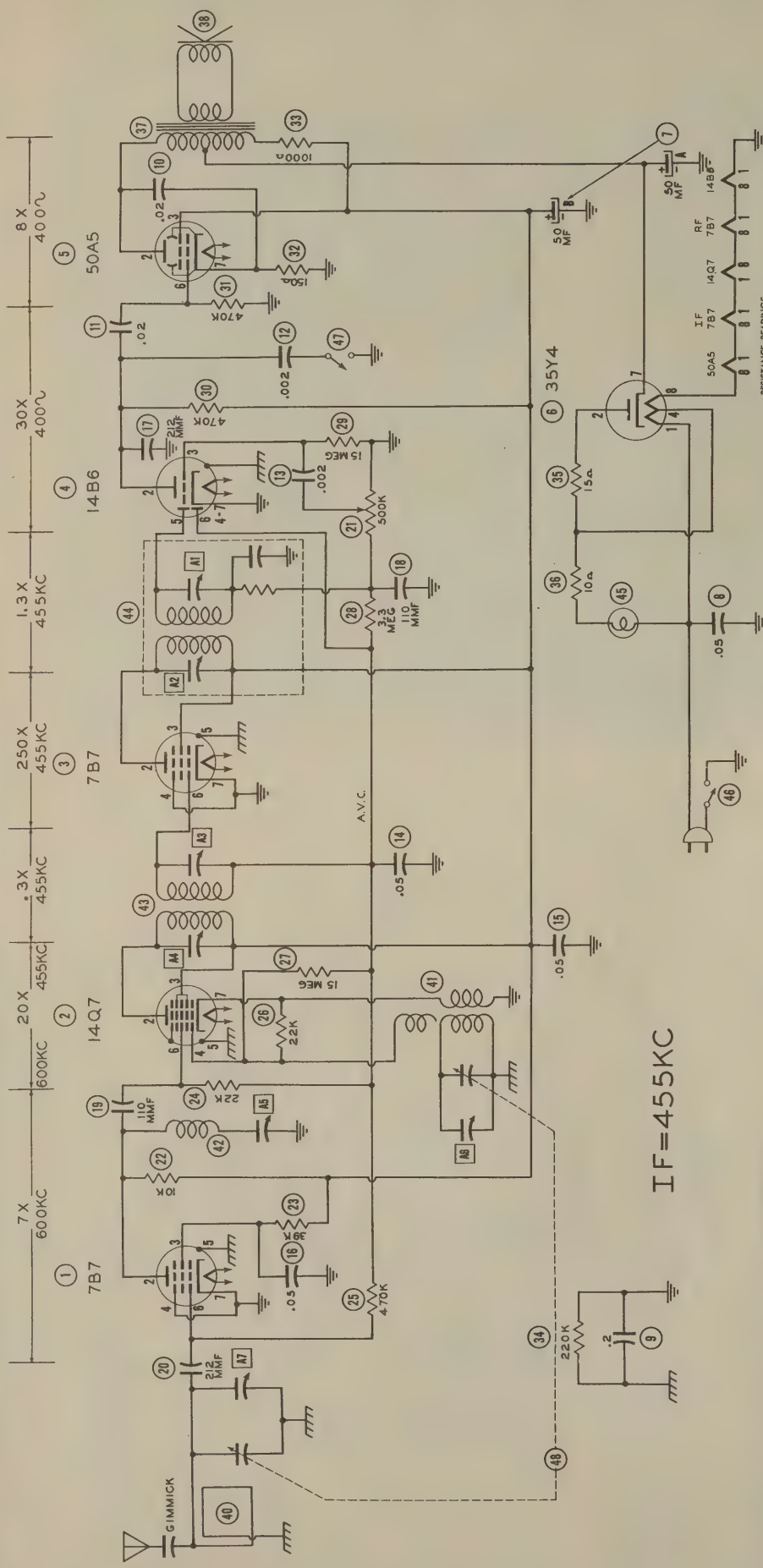
EMERSON MODEL 512						
TRADE NAME	Emerson, Models 512, 515, 516, 550 (Ch. 120056)					
MANUFACTURER	Emerson Radio & Phonograph Corp., 111 Eighth Ave., New York 11, N.Y.					
TYPE SET	AC-DC Superheterodyne Receiver with Loop Antenna					
TUBES (SIX)	Types, 7B7 RF Amp., 14Q7 Converter, 7B7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.					
POWER SUPPLY	105-125 Volts AC-DC					
TUNING RANGE—BROADCAST	540-1620KC		RATING		.250 Amp. @ 117V AC	
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
To set pointer turn tuning cap. fully closed and set pointer 1-11/16" from left edge of dial backplate. Use isolation transformer if available. If not, connect a .1 MFD. capacitor in series with low side of signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin 6 (grid) 14Q7. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy antenna to .01 MFD. to reduce hum modulation.
.1 MFD.	High side to ext. ant. lead. Low side to chassis.	"	"	"	A5	Adjust for minimum output.
	Loop	1400KC	5 1/2" from left edge of dial-back plate.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
	"	"	Tune for maximum output.	"	A7	Adjust for maximum output.
	"	600KC	"	"	Loop	This step is only necessary if the loop has been replaced. Adjust the free half turn of the loop to either side of the center of the loop to give maximum output. Then repeat Step 4.

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Indianapolis Indiana



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	12VAC	53VDC	OV.	OV.	OV.	-6VDC	OV.	18VAC
2	14Q7	32VAC	88VDC	88VDC	-9.7VDC	OV.	-6VDC	OV.	18VAC
3	7B7	32VAC	88VDC	88VDC	OV.	OV.	-7VDC	OV.	38VAC
4	14B6	OV.	56VDC	-8VDC	OV.	-2VDC	-7VDC	OV.	12VAC
5	50A5	38VAC	111VDC	88VDC	OV.	OV.	OV.	5.8VDC	87VAC
6	35Y4	117VAC	112VAC	OV.	113VAC	117VDC	115VAC	117VDC	87VAC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFAC STANDARD NOTATION SCHEMATIC
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TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	13Ω	60KΩ	90KΩ	0Ω	0Ω	4 Meg.	0Ω	20Ω
2	14Q7	32Ω	50KΩ	50KΩ	22KΩ	230KΩ	3.2 Meg.	.7Ω	20Ω
3	7B7	32Ω	50KΩ	50KΩ	0Ω	0Ω	3.2 Meg.	0Ω	38Ω
4	14B6	0Ω	520KΩ	15 Meg.	0Ω	650KΩ	3.2 Meg.	0Ω	13Ω
5	50A5	38Ω	50KΩ	50KΩ	1MΩ	0Ω	450KΩ	150Ω	90Ω
6	35Y4	120Ω	130Ω	1MΩ	117Ω	50KΩ	120Ω	50KΩ	90Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4716-11

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

EMERSON MODEL 549

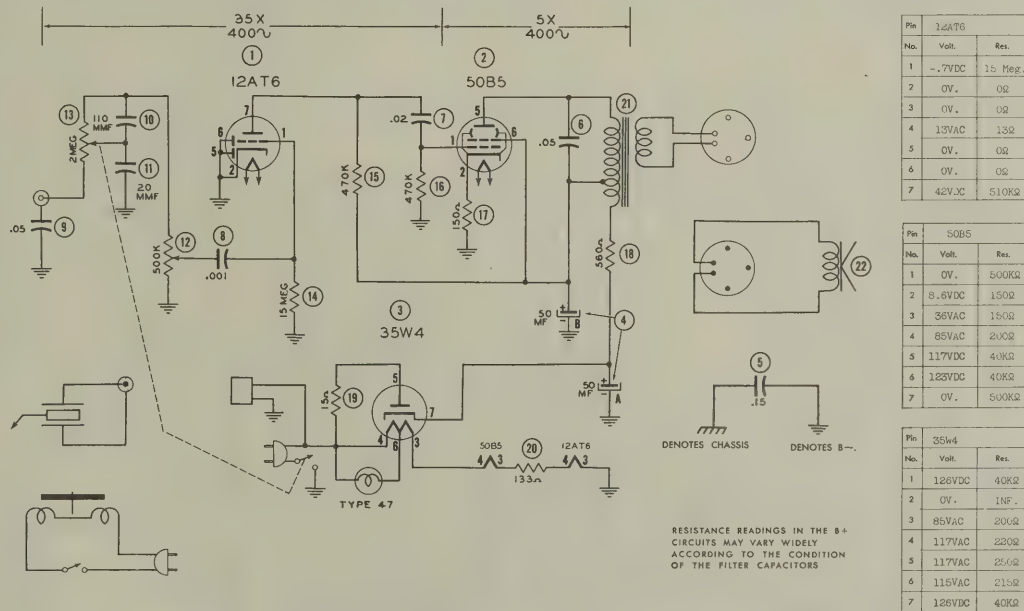
EMERSON MODEL 549



EMERSON MODEL 549

TRADE NAME Emerson, Model 549 (Ch. 120051)
 MANUFACTURER Emerson Radio & Phono Corp., 111 Eighth Ave., New York 11, N.Y.
 TYPE SET AC Operated Phonograph with 3 Tube Amplifier and Speaker
 TUBES (THREE) Types, 12AT6 AF Amp., 50B5 Power Output, 35W4 Rectifier.
 POWER SUPPLY 105-125 Volts AC RATING .250 Amps. @ 117V AC

EMERSON MODEL 549



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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4716-12

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HOWARD W. SAMs & CO., INC.

Indianapolis Indiana

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DATE 10/47 SET #26 FOLDER #4716-12

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

EMERSON
MODEL 549

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		EMERSON PART No.	RMA BASE TYPE	
1	AF Amp.	12A7G	7BT	
2	Power Output	50B5	7BZ	
3	Rectifier	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		EMERSON PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
4A	50	925009	2N521	DSB-2x50-150	TA-505	Filter - Red
5	150					
6	150	920420	TP417	S-4-2	TC-1	Line Isolation
7	400	920080	TP425	S-4-05	TC-15	Output Plate Bypass
8	400	920020	TP423	S-4-02	TC-12	Audio Coupling
9	600	920170	TP404	S-4-001	TC-22	Phono Isolation
10	400	920080	TP425	S-4-05	TC-15	
11	110	910220	TC235	TC-5-31	TP4-31	Tone Comp.
12	200	910230	TC237	TC-5-32	TP4-32	

Note 1-Some sets may use 220 MFD, Emerson Part #910000.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		EMERSON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
12A	500KΩ	390016	MK401	D13-133	AM-60-Z	Volume Control
13A	2 Meg.	390370	Not Req.	E	KSS-3	Attach to 12A per instructions
13B	2 Meg.	Not Req.	MK403	D13-139	AM-66-Z	Tone Control
13C	Switch	Not Req.	M26	41	KSS-3	Attach to 13A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		EMERSON PART No.	IRC PART No.	
14	15 Meg.	397000	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
15	470KΩ	321130	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
16	470KΩ	321130	BTS-470K	Yl.-Vi.-Yl. Output Grid
17	150Ω	370290	BW-1-150	Br.-Grn.-Br. Output Cathode
18	560Ω	340430	BTS-560	Grn.-Blue-Br. Filter
19	15Ω	340050	BW-1-15	Br.-Grn.-Blk. Rectifier Ballast
20	133Ω	394160	ABA-150	Line Dropping-See Note

Note-On IRC replacement set slider at 133Ω from one end.

TRANSFORMER (OUTPUT)

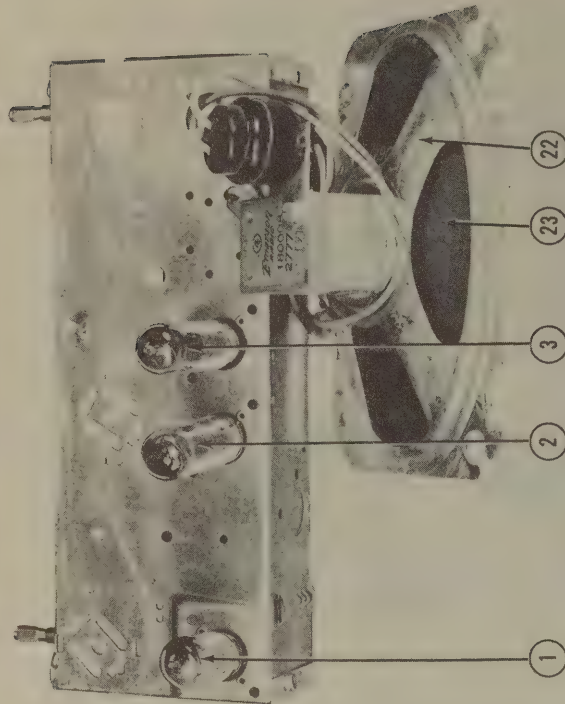
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		EMERSON PART No.	STANCOR PART No.	THORAR'N PART No.	MERIT PART No.	
21	2900Ω 4.6Ω	2249	734000	A-3876*	A-2929*	*Add extra filter to reduce hum level.

SPEAKER

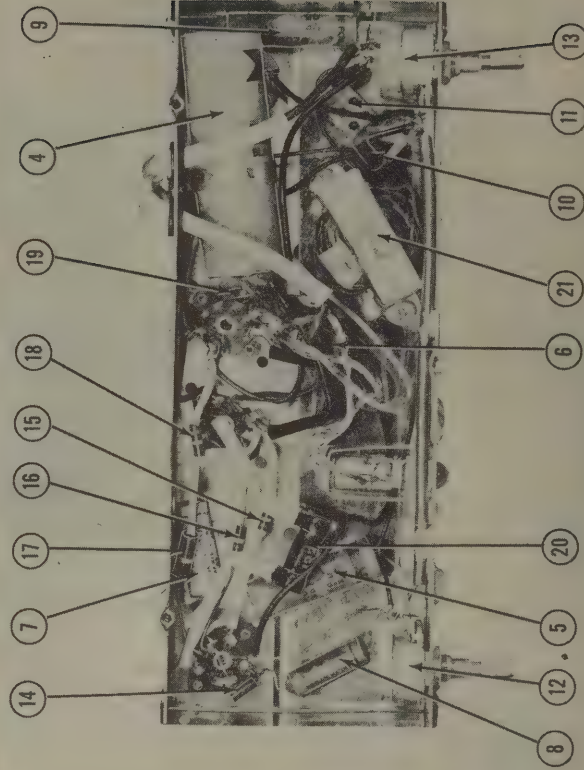
ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		EMERSON PART No.	JENSEN PART No.	
22	FIELD			
23	VC IMP.			
	4.5Ω			
	VC DIA.			
	1/2"			

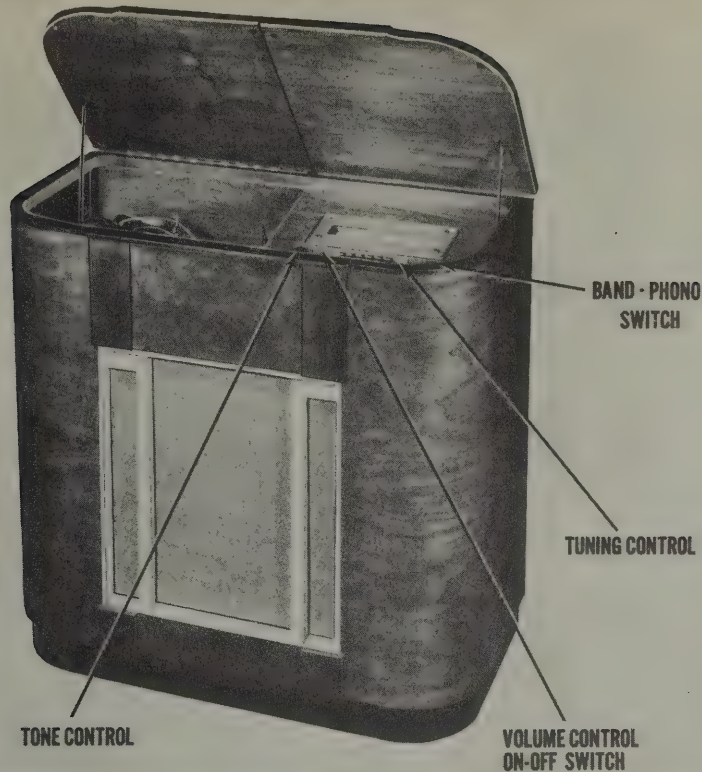
NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT

CHASSIS-TOP VIEW



CHASSIS-BOTTOM VIEW





TRADE NAME		Farnsworth, Models EK-081 (Ch. C-156), EK-082 (Ch. C-157), EK-083 (Ch. C-193), EK-681 (Ch. C-156).					
MANUFACTURER		Farnsworth Television & Radio Corp., Marion, Ind.					
TYPE SET		AC Operated Radio Phono. Combination Superheterodyne Receiver with Loop Antenna					
TUBES (EIGHT)		Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AF, 6SQ7 AVC-Phase Inverter, (2) 6V6GT Power Output, 5Y3GT Rectifier.					
POWER SUPPLY		105-125 Volts AC		RATING		.650 Amps. @ 117V AC	
TUNING RANGE—BROADCAST		540-1620KC		SHORT WAVE		9.4 - 15.4MC	
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
250MMFD.	High side to ext. ant. (red). lead. Low side to ext. grnd. (black) lead.	455KC	BC (center position)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output in order given then repeat.
250MMFD.	"	1620KC	"	"	"	A5	Adjust for maximum output
250MMFD.	"	1500KC	"	Tune for maximum output.	"	A6	" " " "
400Ω carbon res.	"	15.4MC	SW (fully clockwise)	Tuning cap. fully open.	"	A7	Tighten trimmer to maximum capacity, then loosen to second peak. Adjust for maximum output.
"	"	15MC	"	Tune for maximum output.	"	A8	Rock tuning cap. and adjust for maximum output.
"	"	9.7MC	"	"	"	A9	Rock tuning cap. and adjust for maximum output. Repeat Steps 4 and 5.

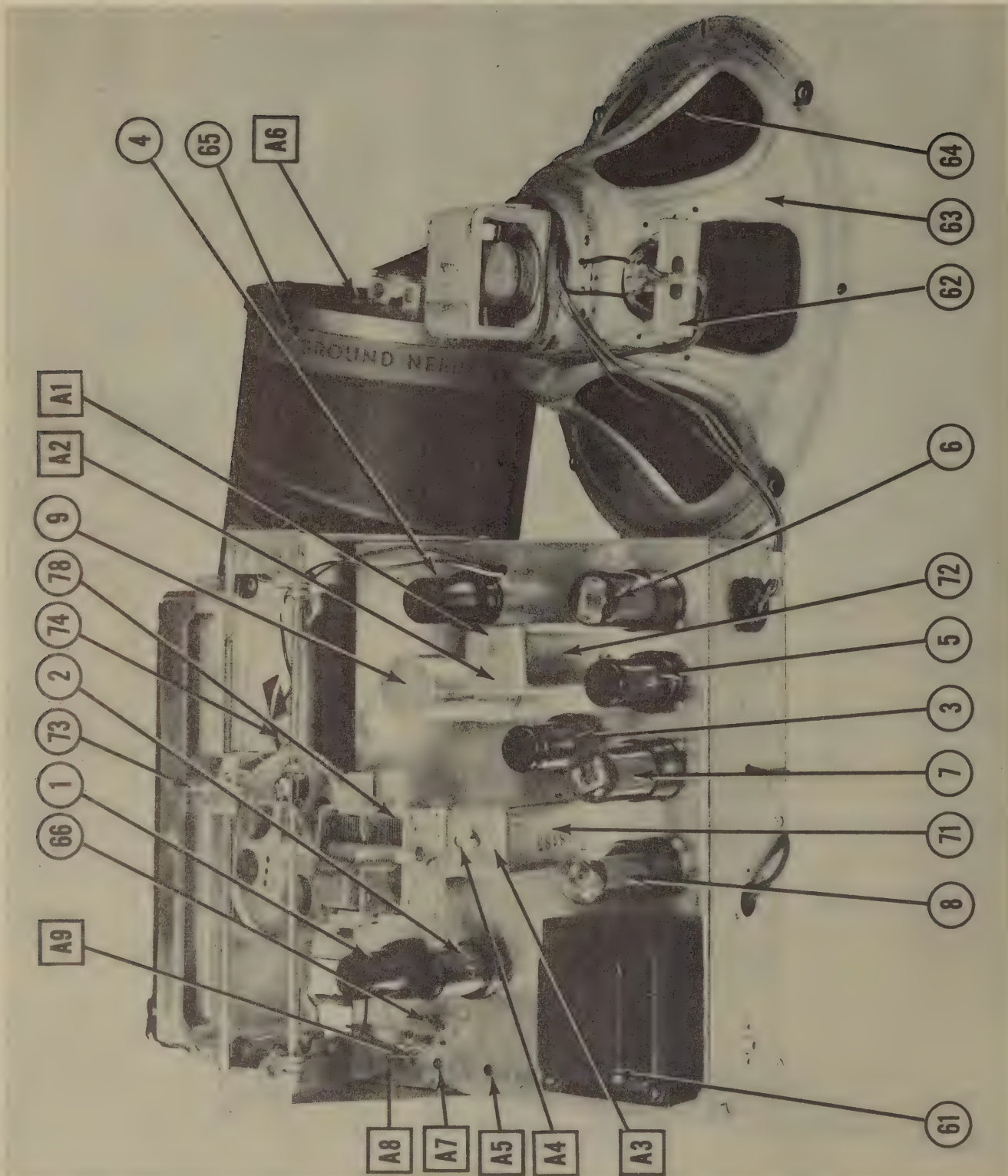
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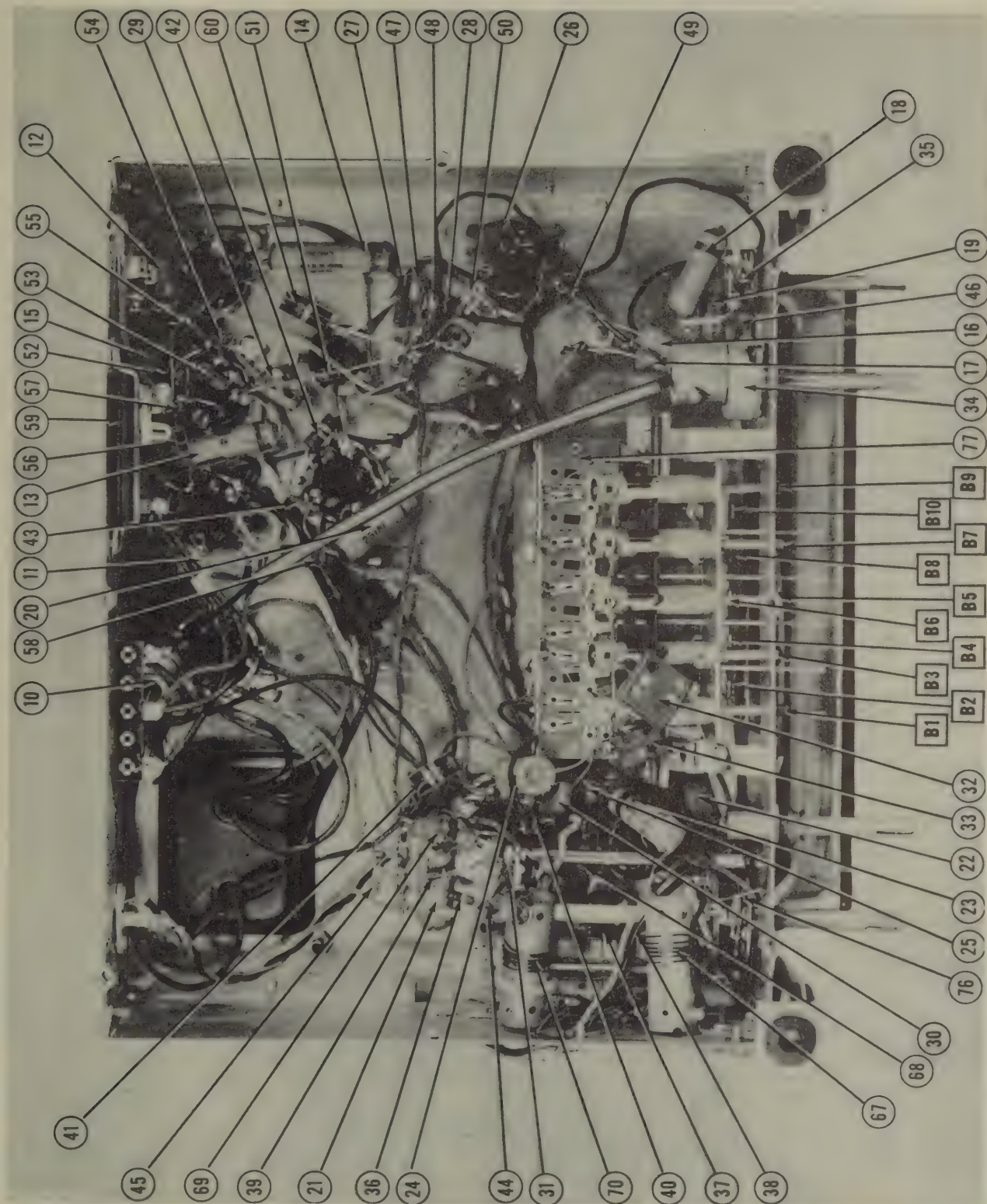
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DATE 10/47 SET #26 FOLDER #4716-13



**FARNSWORTH MODELS EK-081,
EK-082, EK-083, EK-681 PAGE 3**



PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		FARNSWORTH PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AF	6SQ7	6SQ7	8Q	
5	AVC-Phase Inv.	6SQ7	6SQ7	8Q	
6	Power Output	6V6GT	6V6GT	7AC	
7	Power Output	6V6GT	6V6GT	7AC	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		FARNSWORTH PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
9A	30 CAP.	25214	FP429	DI-403	EL-424	AP862JA	UP8DJ53
B	20						Filter
C	20						"
D	20						"
10	.005	25031	TP408	MPH-6-005	TC-25	684-005	DT6D5
11	.003	25184	TP406	S-6-003	TC-23	684-003	DT6D3
12	.002	25184	TP406	S-6-003	TC-23	684-003	DT6D3
13	.02	600	TP412	S-6-02	TC-12	684-002	DT6S2
14	.02	600	TP412	S-6-02	TC-12	684-002	DT6S2
15	.01	400	TP421	S-4-01	TC-11	484-01	DT6S1
16	.01	400	TP421	S-4-01	TC-11	484-01	DT6S1
17	.01	400	TP421	S-4-01	TC-11	484-01	DT6S1
18	.003	25184	TP406	S-6-003	TC-23	684-003	DT6D3
19	.002	600	TP406	S-6-002	TC-22	684-002	DT6D2
20	.01	25212	TP426	S-4-05	TC-15	484-05	DT6D1
21	.1	200	TP428	S-4-1	TC-1	484-1	DT6D1
22	.05	25196	TP415	S-6-05	TC-15	684-05	DT6S5
23	.05	25196	TP426	S-4-05	TC-15	484-05	DT6S5
24	.005	600	TP410	S-6-005	TC-25	684-005	DT6D5
25	.01	600	TP410	S-6-01	TC-11	684-01	DT6S1
26	47	500	M2225	MO.5-45	1FM-45	1468-00005	SW5Q5
27	100	500	M2235	MO.5-31	1FM-31	1468-00001	SW5Q1
28	100	500	M2235	MO.5-31	1FM-31	1468-00001	SW5Q1
29	24	500	M2220	MO.5-425	1FM-425	1468-000025	SW5Q25
30	47	500	M2225	MO.5-45	1FM-45	1468-00005	SW5Q5
31	100	500	M2235	MO.5-31	1FM-31	1468-00001	SW5Q1
32	1350	300					
33	215	500					

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		FARNSWORTH PART No.	MALLORY PART No.	IFC PART No.	CLAROSTAT PART No.	
34A	3 Meg. B Shaft	78057				Volume Control Attach to 34A per Instructions
35A	3 Meg. B Shaft	78072	UM165	D13-140 E	AM-67-Z KSS-3	Tone Control Attach to 35A per Instructions

PARTS LIST AND DESCRIPTIONS (Continued)
R F COILS

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		FARNSWORTH PART No.	MEISSNER PART No.	DC RES.	
55	Loop Ant. Coil	38546		75Ω	
56	Ant. Load. Coil	38794		1.8Ω	
57	SW Ant. Coil	38542	14-1044	0Ω	
58	Peaking Coil	38544		23	
59	Wave Trap	38484		INF.	
70A	EC Osc. Coil	38543		6Ω	
71	SW Osc. Coil			0Ω	
72	Input IF	38485		6.5Ω	Items 70A & 70B wound on same form.
73	Output IF	38486		7.5Ω	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	FARNSWORTH PART No.	
73	Bayonet	6-8	0.25	Blue	42185	Type 44
74					42185	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA		REMARKS
	FARNSWORTH PART No.	ASTATIC PART No.	
75		L71S	

MISCELLANEOUS

ITEM No.	PART NAME	FARNSWORTH PART No.	NOTES
76	Switch	90175	Band-Phono
77	2 gang Var. Cap.	26194	13-465 MWF, 12-246 MWF
78	Trimmer Strip	26175	Pushbutton
46	Trimmer Cap.	26032	Art. Adj.
	Trimmer Strip	26195	A5, A7, A8, A9
	Coil Strip	38405	Pushbutton
	Pickup Cable	22147	For EK-081, EK-083
	Glass Dial	31273	For EK-082
	Dial Background	04055	
	Pushbutton	561397	
	Dial Pointer	07373	
	Knob	59134	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

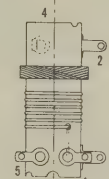
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	FARNSWORTH PART No.	IRC PART No.	
36	100K Ω	1	77214	BTS-100K	Br.-Blk.-Yl. AVC Network
37	1500 Ω	1	77263	BTS-1500	Br.-Grn.-Red RF Plate Load
38	1000 Ω	1	77262	BTS-1000	Br.-Blk.-Red RF Plate Decoupling
39	220K Ω	1	77216	BTS-220K	Red-Red-Yl. Converter Grid
40	22K Ω	1	77266	BTS-22K	Red-Red-Or. Oscillator Grid
41	10K Ω	1	77013	BT-2-10K	Br.-Blk.-Or. Converter Screen Dropping
42	22K Ω	1	77039	BTA-22K	Red-Red-Or. Screen Dropping
43	1500 Ω	1	77263	BTS-1500	Br.-Grn.-Red IF Cathode
44	22K Ω	1	77266	BTS-22K	Red-Red-Or. Series Phono-See Note 1
45	470K Ω	1	77217	BTS-470K	Yl.-Yl.-Yl. Phono Shunt-See Note 2
46	220K Ω	1	77216	BTS-220K	Red-Red-Yl. Tone Compensation
47	47K Ω	1	77213	BTS-47K	Yl.-Yl.-Yl. Diode RF Filter
48	470K Ω	1	77217	BTS-470K	Yl.-Yl.-Yl. Diode Load
49	10 Meg.	1	77274	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
50	470K Ω	1	77217	BTS-470K	Yl.-Yl.-Yl. 4F Plate Load
51	470K Ω	1	77217	BTS-470K	Yl.-Yl.-Yl. Phase Inverter Plate Load
52	10 Meg.	1	77274	BTS-10 Meg.	Br.-Blk.-Blue Phase Inverter Grid
53	1 Meg.	1	77218	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
54	2.2 Meg.	1	77270	BTS-2.2 Meg.	Red-Red-Grn. AVC Diode Load
55	220K Ω	1	77216	BTS-220K	Red-Red-Yl. Output Grid
56	220K Ω	1	77216	BTS-220K	Red-Red-Yl. Output Grid
57	220K Ω	1	77216	BTS-220K	Red-Red-Yl. Output Grid
58	270 Ω	2	77189	BW-2-270	Red-Vl.-Br. Output Cathode
59	2700 Ω	4.7	77243	AB-3000	Br.-Blk.-Red " "
60	1000 Ω	2	77304	BT-2-1000	BT-2-1000

Note 1-Some models use 220K Ω in this application.

Note 2-Not used in models using 220K Ω in #44.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	SEC. 3	FARNSWORTH PART No.	STANCOR PART No.	THORDARSON PART No.
61A1177	AC 1580V CT 15.2V AC 16.5V AC 18.5V AC 20.0V AC 21.5V AC 23.0V AC 24.5V AC 26.0V AC 27.5V AC 29.0V AC 30.5V AC 32.0V AC 33.5V AC 35.0V AC 36.5V AC 38.0V AC 39.5V AC 41.0V AC 42.5V AC 44.0V AC 45.5V AC 47.0V AC 48.5V AC 50.0V AC 51.5V AC 53.0V AC 54.5V AC 56.0V AC 57.5V AC 59.0V AC 60.5V AC 62.0V AC 63.5V AC 65.0V AC 66.5V AC 68.0V AC 69.5V AC 71.0V AC 72.5V AC 74.0V AC 75.5V AC 77.0V AC 78.5V AC 80.0V AC 81.5V AC 83.0V AC 84.5V AC 86.0V AC 87.5V AC 89.0V AC 90.5V AC 92.0V AC 93.5V AC 95.0V AC 96.5V AC 98.0V AC 99.5V AC 100.0V AC 101.5V AC 103.0V AC 104.5V AC 106.0V AC 107.5V AC 109.0V AC 110.5V AC 112.0V AC 113.5V AC 115.0V AC 116.5V AC 118.0V AC 119.5V AC 121.0V AC 122.5V AC 124.0V AC 125.5V AC 127.0V AC 128.5V AC 130.0V AC 131.5V AC 133.0V AC 134.5V AC 136.0V AC 137.5V AC 139.0V AC 140.5V AC 142.0V AC 143.5V AC 145.0V AC 146.5V AC 148.0V AC 149.5V AC 151.0V AC 152.5V AC 154.0V AC 155.5V AC 157.0V AC 158.5V AC 160.0V AC 161.5V AC 163.0V AC 164.5V AC 166.0V AC 167.5V AC 169.0V AC 170.5V AC 172.0V AC 173.5V AC 175.0V AC 176.5V AC 178.0V AC 179.5V AC 181.0V AC 182.5V AC 184.0V AC 185.5V AC 187.0V AC 188.5V AC 190.0V AC 191.5V AC 193.0V AC 194.5V AC 196.0V AC 197.5V AC 199.0V AC 200.0V AC 201.5V AC 203.0V AC 204.5V AC 206.0V AC 207.5V AC 209.0V AC 210.5V AC 212.0V AC 213.5V AC 215.0V AC 216.5V AC 218.0V AC 219.5V AC 221.0V AC 222.5V AC 224.0V AC 225.5V AC 227.0V AC 228.5V AC 230.0V AC 231.5V AC 233.0V AC 234.5V AC 236.0V AC 237.5V AC 239.0V AC 240.5V AC 242.0V AC 243.5V AC 245.0V AC 246.5V AC 248.0V AC 249.5V AC 251.0V AC 252.5V AC 254.0V AC 255.5V AC 257.0V AC 258.5V AC 260.0V AC 261.5V AC 263.0V AC 264.5V AC 266.0V AC 267.5V AC 269.0V AC 270.5V AC 272.0V AC 273.5V AC 275.0V AC 276.5V AC 278.0V AC 279.5V AC 281.0V AC 282.5V AC 284.0V AC 285.5V AC 287.0V AC 288.5V AC 290.0V AC 291.5V AC 293.0V AC 294.5V AC 296.0V AC 297.5V AC 299.0V AC 300.0V AC 301.5V AC 303.0V AC 304.5V AC 306.0V AC 307.5V AC 309.0V AC 310.5V AC 312.0V AC 313.5V AC 315.0V AC 316.5V AC 318.0V AC 319.5V AC 321.0V AC 322.5V AC 324.0V AC 325.5V AC 327.0V AC 328.5V AC 330.0V AC 331.5V AC 333.0V AC 334.5V AC 336.0V AC 337.5V AC 339.0V AC 340.5V AC 342.0V AC 343.5V AC 345.0V AC 346.5V AC 348.0V AC 349.5V AC 351.0V AC 352.5V AC 354.0V AC 355.5V AC 357.0V AC 358.5V AC 360.0V AC 361.5V AC 363.0V AC 364.5V AC 366.0V AC 367.5V AC 369.0V AC 370.5V AC 372.0V AC 373.5V AC 375.0V AC 376.5V AC 378.0V AC 379.5V AC 381.0V AC 382.5V AC 384.0V AC 385.5V AC 387.0V AC 388.5V AC 390.0V AC 391.5V AC 393.0V AC 394.5V AC 396.0V AC 397.5V AC 399.0V AC 400.0V AC 401.5V AC 403.0V AC 404.5V AC 406.0V AC 407.5V AC 409.0V AC 410.5V AC 412.0V AC 413.5V AC 415.0V AC 416.5V AC 418.0V AC 419.5V AC 421.0V AC 422.5V AC 424.0V AC 425.5V AC 427.0V AC 428.5V AC 430.0V AC 431.5V AC 433.0V AC 434.5V AC 436.0V AC 437.5V AC 439.0V AC 440.5V AC 442.0V AC 443.5V AC 445.0V AC 446.5V AC 448.0V AC 449.5V AC 451.0V AC 452.5V AC 454.0V AC 455.5V AC 457.0V AC 458.5V AC 460.0V AC 461.5V AC 463.0V AC 464.5V AC 466.0V AC 467.5V AC 469.0V AC 470.5V AC 472.0V AC 473.5V AC 475.0V AC 476.5V AC 478.0V AC 479.5V AC 481.0V AC 482.5V AC 484.0V AC 485.5V AC 487.0V AC 488.5V AC 490.0V AC 491.5V AC 493.0V AC 494.5V AC 496.0V AC 497.5V AC 499.0V AC 500.0V AC 501.5V AC 503.0V AC 504.5V AC 506.0V AC 507.5V AC 509.0V AC 510.5V AC 512.0V AC 513.5V AC 515.0V AC 516.5V AC 518.0V AC 519.5V AC 521.0V AC 522.5V AC 524.0V AC 525.5V AC 527.0V AC 528.5V AC 530.0V AC 531.5V AC 533.0V AC 534.5V AC 536.0V AC 537.5V AC 539.0V AC 540.5V AC 542.0V AC 543.5V AC 545.0V AC 546.5V AC 548.0V AC 549.5V AC 551.0V AC 552.5V AC 554.0V AC 555.5V AC 557.0V AC 558.5V AC 560.0V AC 561.5V AC 563.0V AC 564.5V AC 566.0V AC 567.5V AC 569.0V AC 570.5V AC 572.0V AC 573.5V AC 575.0V AC 576.5V AC 578.0V AC 579.5V AC 581.0V AC 582.5V AC 584.0V AC 585.5V AC 587.0V AC 588.5V AC 590.0V AC 591.5V AC 593.0V AC 594.5V AC 596.0V AC 597.5V AC 599.0V AC 600.0V AC 601.5V AC 603.0V AC 604.5V AC 606.0V AC 607.5V AC 609.0V AC 610.5V AC 612.0V AC 613.5V AC 615.0V AC 616.5V AC 618.0V AC 619.5V AC 621.0V AC 622.5V AC 624.0V AC 625.5V AC 627.0V AC 628.5V AC 630.0V AC 631.5V AC 633.0V AC 634.5V AC 636.0V AC 637.5V AC 639.0V AC 640.5V AC 642.0V AC 643.5V AC 645.0V AC 646.5V AC 648.0V AC 649.5V AC 651.0V AC 652.5V AC 654.0V AC 655.5V AC 657.0V AC 658.5V AC 660.0V AC 661.5V AC 663.0V AC 664.5V AC 666.0V AC 667.5V AC 669.0V AC 670.5V AC 672.0V AC 673.5V AC 675.0V AC 676.5V AC 678.0V AC 679.5V AC 681.0V AC 682.5V AC 684.0V AC 685.5V AC 687.0V AC 688.5V AC 690.0V AC 691.5V AC 693.0V AC 694.5V AC 696.0V AC 697.5V AC 699.0V AC 700.0V AC 701.5V AC 703.0V AC 704.5V AC 706.0V AC 707.5V AC 709.0V AC 710.5V AC 712.0V AC 713.5V AC 715.0V AC 716.5V AC 718.0V AC 719.5V AC 721.0V AC 722.5V AC 724.0V AC 725.5V AC 727.0V AC 728.5V AC 730.0V AC 731.5V AC 733.0V AC 734.5V AC 736.0V AC 737.5V AC 739.0V AC 740.5V AC 742.0V AC 743.5V AC 745.0V AC 746.5V AC 748.0V AC 749.5V AC 751.0V AC 752.5V AC 754.0V AC 755.5V AC 757.0V AC 758.5V AC 760.0V AC 761.5V AC 763.0V AC 764.5V AC 766.0V AC 767.5V AC 769.0V AC 770.5V AC 772.0V AC 773.5V AC 775.0V AC 776.5V AC 778.0V AC 779.5V AC 781.0V AC 782.5V AC 784.0V AC 785.5V AC 787.0V AC 788.5V AC 790.0V AC 791.5V AC 793.0V AC 794.5V AC 796.0V AC 797.5V AC 799.0V AC 800.0V AC 801.5V AC 803.0V AC 804.5V AC 806.0V AC 807.5V AC 809.0V AC 810.5V AC 812.0V AC 813.5V AC 815.0V AC 816.5V AC 818.0V AC 819.5V AC 821.0V AC 822.5V AC 824.0V AC 825.5V AC 827.0V AC 828.5V AC 830.0V AC 831.5V AC 833.0V AC 834.5V AC 836.0V AC 837.5V AC 839.0V AC 840.5V AC 842.0V AC 843.5V AC 845.0V AC 846.5V AC 848.0V AC 849.5V AC 851.0V AC 852.5V AC 854.0V AC 855.5V AC 857.0V AC 858.5V AC 860.0V AC 861.5V AC 863.0V AC 864.5V AC 866.0V AC 867.5V AC 869.0V AC 870.5V AC 872.0V AC 873.5V AC 875.0V AC 876.5V AC 878.0V AC 879.5V AC 881.0V AC 882.5V AC 884.0V AC 885.5V AC 887.0V AC 888.5V AC 890.0V AC 891.5V AC 893.0V AC 894.5V AC 896.0V AC 897.5V AC 899.0V AC 900.0V AC 901.5V AC 903.0V AC 904.5V AC 906.0V AC 907.5V AC 909.0V AC 910.5V AC 912.0V AC 913.5V AC 915.0V AC 916.5V AC 918.0V AC 919.5V AC 921.0V AC 922.5V AC 924.0V AC 925.5V AC 927.0V AC 928.5V AC 930.0V AC 931.5V AC 933.0V AC 934.5V AC 936.0V AC 937.5V AC 939.0V AC 940.5V AC 942.0V AC 943.5V AC 945.0V AC 946.5V AC 948.0V AC 949.5V AC 951.0V AC 952.5V AC 954.0V AC 955.5V AC 957.0V AC 958.5V AC 960.0V AC 961.5V AC 963.0V AC 964.5V AC 966.0V AC 967.5V AC 969.0V AC 970.5V AC 972.0V AC 973.5V AC 975.0V AC 976.5V AC 978.0V AC 979.5V AC 981.0V AC 982.5V AC 984.0V AC 985.5V AC 987.0V AC 988.5V AC 990.0V AC 991.5V AC 993.0V AC 994.5V AC 996.0V AC 997.5V AC 999.0V AC 1000.0V AC 1001.5V AC 1003.0V AC 1004.5V AC 1006.0V AC 1007.5V AC 1009.0V AC 1010.5V AC 1012.0V AC 1013.5V AC 1015.0V AC 1016.5V AC 1018.0V AC 1019.5V AC 1021.0V AC 1022.5V AC 1024.0V AC 1025.5V AC 1027.0V AC 1028.5V AC 1030.0V AC 1031.5V AC 1033.0V AC 1034.5V AC 1036.0V AC 1037.5V AC 1039.0V AC 1040.5V AC 1042.0V AC 1043.5V AC 1045.0V AC 1046.5V AC 1048.0V AC 1049.5V AC 1051.0V AC 1052.5V AC 1054.0V AC 1055.5V AC 1057.0V AC 1058.5V AC 1060.0V AC 1061.5V AC 1063.0V AC 1064.5V AC 1066.0V AC 1067.5V AC 1069.0V AC 1070.5V AC 1072.0V AC 1073.5V AC 1075.0V AC 1076.5V AC 1078.0V AC 1079.5V AC 1081.0V AC 1082.5V AC 1084.0V AC 1085.5V AC 1087.0V AC 1088.5V AC 1090.0V AC 1091.5V AC 1093.0V AC 1094.5V AC 1096.0V AC 1097.5V AC 1099.0V AC 1100.0V AC 1101.5V AC 1103.0V AC 1104.5V AC 1106.0V AC 1107.5V AC 1109.0V AC 1110.5V AC 1112.0V AC 1113.5V AC 1115.0V AC 1116.5V AC 1118.0V AC 1119.5V AC 1121.0V AC 1122.5V AC 1124.0V AC 1125.5V AC 1127.0V AC 1128.5V AC 1130.0V AC 1131.5V AC 1133.0V AC 1134.5V AC 1136.0V AC 1137.5V AC 1139.0V AC 1140.5V AC 1142.0V AC 1143.5V AC 1145.0V AC 1146.5V AC 1148.0V AC 1149.5V AC 1151.0V AC 1152.5V AC 1154.0V AC 1155.5V AC 1157.0V AC 1158.5V AC 1160.0V AC 1161.5V AC 1163.0V AC 1164.5V AC 1166.0V AC 1167.5V AC 1169.0V AC 1170.5V AC 1172.0V AC 1173.5V AC 1175.0V AC 1176.5V AC 1178.0V AC 1179.5V AC 1181.0V AC 1182.5V AC 1184.0V AC 1185.5V AC 1187.0V AC 1188.5V AC 1190.0V AC 1191.5V AC 1193.0V AC 1194.5V AC 1196.0V AC 1197.5V AC 1199.0V AC 1200.0V AC 1201.5V AC 1203.0V AC 1204.5V AC 1206.0V AC 1207.5V AC 1209.0V AC 1210.5V AC 1212.0V AC 1213.5V AC 1215.0V AC 1216.5V AC 1218.0V AC 1219.5V AC 1221.0V AC 1222.5V AC 1224.0V AC 1225.5V AC 1227.0V AC 1228.5V AC 1230.0V AC 1231.5V AC 1233.0V AC 1234.5V AC 1236.0V AC 1237.5V AC 1239.0V AC 1240.5V AC 1242.0V AC 1243.5V AC 1245.0V AC 1246.5V AC 1248.0V AC 1249.5V AC 1251.0V AC 1252.5V AC 1254.0V AC 1255.5V AC 1257.0V AC 1258.5V AC 1260.0V AC 1261.5V AC 1263.0V AC 1264.5V AC 1266.0V AC 1267.5V AC 1269.0V AC 1270.5V AC 1272.0V AC 1273.5V AC 1275.0V AC 1276.5V AC 1278.0V AC 1279.5V AC 1281.0V AC 1282.5V AC 1284.0V AC 1285.5V AC 1287.0V AC 1288.5V AC 1290.0V AC 1291.5V AC 1293.0V AC 1294.5V AC 1296.0V AC 1297.5V AC 1299.0V AC 1300.0V AC 1301.5V AC 1303.0V AC 1304.5V AC 1306.0V AC 1307.5V AC 1309.0V AC 1310.5V AC 1312.0V AC 1313.5V AC 1315.0V AC 1316.5V AC 1318.0V AC 1319.5V AC 1321.0V AC 1322.5V AC 1324.0V AC 1325.5V AC 1327.0V AC 1328.5V AC 1330.0V AC 1331.5V AC 1333.0V AC 1334.5V AC 1336.0V AC 1337.5V AC 1339.0V AC 1340.5V AC 1342.0V AC 1343.5V AC 1345.0V AC 1346.5V AC 1348.0V AC 1349.5V AC 1351.0V AC 1352.5V AC 1354.0V AC 1355.5V AC 1357.0V AC 1358.5V AC 1360.0V AC 1361.5V AC 1363.0V AC 1364.5V AC 1366.0V AC 1367.5V AC 1369.0V AC 1370.5V AC 1372.0V AC 1373.5V AC 1375.0V AC 1376.5V AC 1378.0V AC 1379.5V AC 1381.0V AC 1382.5V AC 1384.0V AC 1385.5V AC 1387.0V AC 1388.5V AC 1390.0V AC 1391.5V AC 1393.0V AC 1394.5V AC 1396.0V AC 1397.5V AC 1399.0V AC 1400.0V AC 1401.5V AC 1403.0V AC 1404.5V AC 1406.0V AC 1407.5V AC 1409.0V AC 1410.5V AC 1412.0V AC 1413.5V AC 1415.0V AC 1416.5V AC 1418.0V AC 1419.5V AC 1421.0V AC 1422.5V AC 1424.0V AC 1425.5V AC 1427.0V AC 1428.5V AC 1430.0V AC 1431.5V AC 1433.0V AC 1434.5V AC 1436.0V AC 1437.5V AC 1439.0V AC 1440.5V AC 1442.0V AC 1443.5V AC 1445.0V AC 1446.5V AC 1448.0V AC 1449.5V AC 1451.0V AC 1452.5V AC 1454.0V AC 1455.5V AC 1457.0V AC 1458.5V AC 1460.0V AC 1461.5V AC 1463.0V AC 1464.5V AC 1466.0V 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AC 2146.5V AC 2148.0V AC 2149.5V AC 2151.0V AC 2152.5V AC 2154.0V AC 2155.5V AC 2157.0V AC 2158.5V AC 2160.0V AC 2161.5V AC 2163.0V AC 2164.5V AC 2						

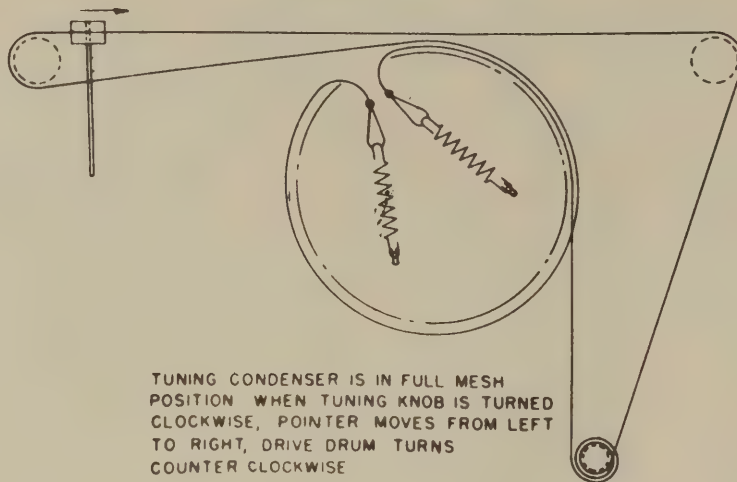


RESISTANCE READINGS.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

4716-13

DIAL STRINGING



TUNING CONDENSER IS IN FULL MESH POSITION WHEN TUNING KNOB IS TURNED CLOCKWISE, POINTER MOVES FROM LEFT TO RIGHT, DRIVE DRUM TURNS COUNTER CLOCKWISE

PUSHBUTTON ADJUSTMENTS

Range of buttons reading from right to left is: Manual Tuning with first button, 750-1600KC, 650-1450KC, 650-1450KC, 600-1350KC, 550-1250KC.

1. Turn receiver on and allow it to warm up for about 15 minutes.
2. Make up a list of stations ranging from high to low frequency making certain each station falls within range of the button to be set up.
3. Remove pushbutton escutcheon plate.
4. Push in first pushbutton shaft on right and manually tune in first station to be set up.
5. Push in second button shaft from right and adjust B₁ to tune in station. Ascertain whether or not you have the correct station by alternately pushing in dial button shaft and then pushbutton shaft.
6. Adjust B₂ for maximum volume.
7. Set up the remaining buttons by following the same procedure outlined above.
8. Replace escutcheon plate.



FLUSH WALL MODEL 5P

TRADE NAME Flush Wall Model 5P
MANUFACTURER Flush Wall Radio Co., 58 E. Park St., Newark 2, N.Y.
TYPE SET AC-DC Superheterodyne Receiver
TUBES (FIVE) Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT or 50L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 110-120 Volts AC-DC
TUNING RANGE—BROADCAST 530-1620KC **RATING** .250 Amps.@ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2 200MMFD.	High side to ext. ant. lead. Low side to B-.	1500KC	1500KC	"	A5	Adjust for maximum output.
3 200MMFD.	"	1400KC	Tune for maximum output.	"	A6	" " " "

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DATE 10/47 SET #26 FOLDER #4716-14

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

FLUSH WALL
MODEL-SP

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		FLUSH WALL PART No.	STANDARD REPLACEMENT		
1	Converter	128A7GT	128A7GT	8AD	
2	1F Amp.	128K7GT	128K7GT	8N	
3	Det.-AVC-AF	128Q7GT	128Q7GT	8Q	
4A	Power Output	35L6GT	35L6GT	7AC	
B		50L6	50L6	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		FLUSH WALL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	40 CAP. 150V	2N514	M-2X40-150	TA-240	FRS150-40	Filter
B	150 CAP. 150V	TP426	MPH-4-1	TC-15	484-05	Line Filter
7	.05 CAP. 400V	TP426	S-4-1	TC-1	484-01	Line Isolation Trap
8	.03 CAP. 400V	TP424	S-4-03	TC-15	484-03	Output Plate Bypass
9	.01 CAP. 400V	TP421	S-4-01	TC-11	484-01	Audio Coupling
10	.002 CAP. 400V	TP405	S-6-002	TC-22	684-002	Audio Coupling
11	.002 CAP. 400V	TP426	S-4-05	TC-15	484-05	Audio Filter
12	.05 CAP. 400V	M2240	M0.5-325	IFM-325	1468-00025	AVC Filter
13	250 CAP. 500V	M2240	M0.5-325	IFM-325	1468-00025	Diode Filter
14	250 CAP. 500V	M2225	M0.5-45	IFM-45	1468-00005	Osc. Grid Capacitor
15	50 CAP. 500V	M2225	M0.5-45	IFM-45	1468-00005	Fixed Trimmer
16	15 CAP. 500V	M2240	M0.5-415	MS-415	1468-00015	Ext. Ant. Coupling
17	250 CAP. 500V	M2240	M0.5-325	IFM-325	1468-00025	SW5T25

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		FLUSH WALL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	1 Meg. B Shunt	PR53	Not Req.	D13-137	M-83-Z	Volume Control
C	Switch	PR26	Not Req.	41	SM-A	Attach to 18A per instructions

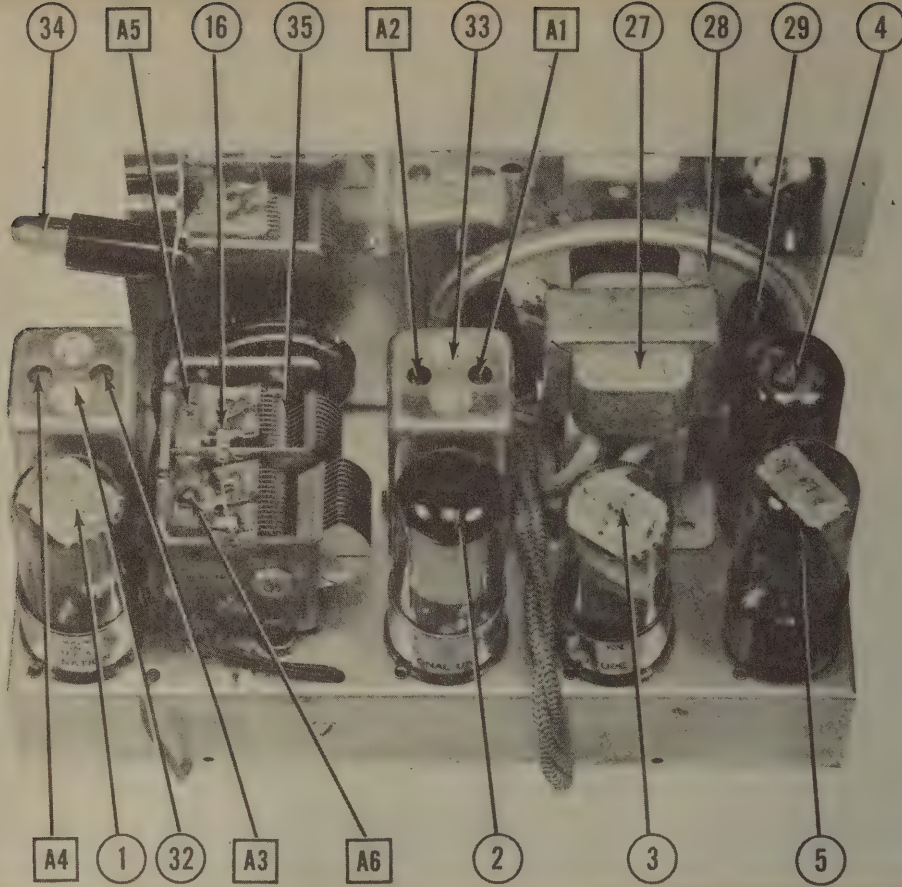
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		FLUSH WALL PART No.	IRC PART No.	
19	20KΩ		BTS-22K	Red-Blk.-Or. Oscillator Grid
20	5 Meg.		BTS-3.3 Meg.	Or.-Blk.-Grn. AVC Network
21	15 Meg.		BTS-15 Meg.	Br.-Grn.-Blue AF Grid - See Note
22	220KΩ		BTS-220K	Red-Red-Yl. AF Plate Load
23	470KΩ		BTS-470K	Yl.-Vl.-Yl. Output Grid
24	150KΩ		BW-150	Br.-Grn.-Br. Output Cathode
25	200KΩ		BTS-200K	Red-Blk.-Yl. Line Isolation
26	2200Ω		BTA-2200	Red-Red-Red Filter

Note—Some models use 10 Meg. in this application. IRC replacement BTS-10 Meg.

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE PRI. SEC.	DC RES. PRI. SEC.	WATTS	FLUSH WALL PART No.	STANCOR PART No.	MERIT PART No.	
27	2050Ω 3.5Ω	215Ω	.92	1143	A-3876*	T22S45*	*Bend mounting tabs down, file out slots and mount on original bracket.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		FLUSH WALL PART No.	JENSEN PART No.	
28	FIELD PM CONE DIA. 3.50 VC DIA. 1/2"	6693		
29		NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

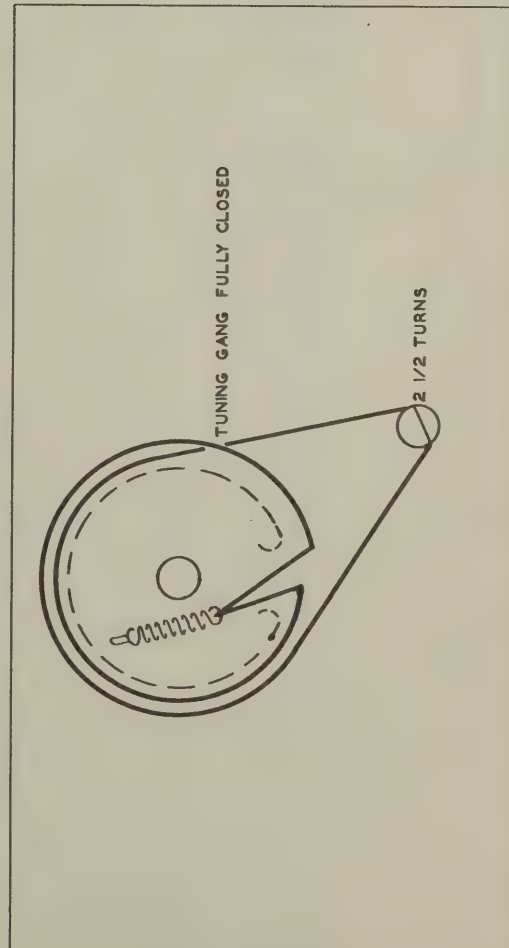
ITEM No.	USE	REPLACEMENT DATA	
		FLUSH WALL PART No.	MEISSNER PART No.
30 Ant. Coil			14-1026
31 Osc. Coil			14-1040
32 Input IF			16-6658
33 Output IF			16-6660

DIAL LIGHT

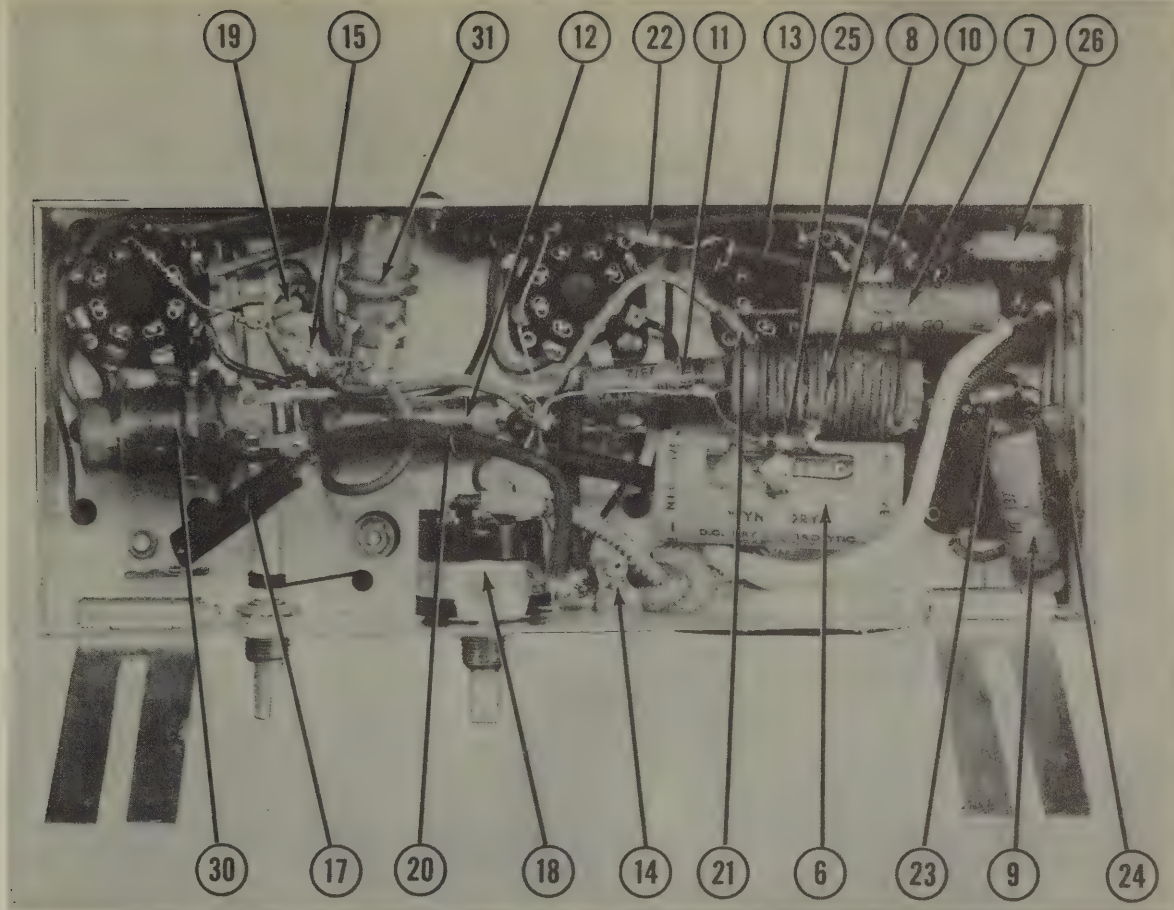
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	FLUSH WALL PART No.	
34 Bayonet		6-8	0.15	Brown		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	FLUSH WALL PART No.	NOTES
35	2 Gang Var. Cap	33-450MTF	40-208MTF



CHASSIS—BOTTOM VIEW



GEN. TELEVISION MODEL
25B5 BATTERY OPERATED



GEN. TELEVISION MODEL
25B5 BATTERY OPERATED

GENERAL TELEVISION MODEL 25B5

TRADE NAME	General Television Model 25B5		
MANUFACTURER	General Television and Radio Corp., 2701-17 Lehmann Court, Chicago 14, Ill.		
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna		
TUBES (FIVE)	Types, 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 3LF4 Power Output, 117Z6GT Rectifier.		
POWER SUPPLY	110-120 Volts AC-DC or 7½V "A" Supply and 90V "B" Supply in Pack Form		
RATING	.220 Amps. @ 117V AC 53MA @ 7½V and 12 MA @ 90V.		
TUNING RANGE—BROADCAST	540-1700KC		

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer parallel with base of dial. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with the low side of the signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MMF to reduce hum modulation.
2		Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal in to loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 10/47 SET #26 FOLDER #4716-15

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

GENERAL TELEVISION
MODEL 25B5

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		GEN. TELE. PART No.	STANDARD REPLACEMENT	
1	Converter	11A6	11A6	
2	IF Amp.	11N5	11N5	
3	Det.-AVC-AF	11H4	11H4	
4	Power Output	3LF4	3LF4	
5	Rectifier	117Z6GT	117Z6GT	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		GEN. TELE. PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	CAP. 35	3-5	TC48	DY-3x40-150	TA-303	Filter - Red
B	35					" "
C	35					" "
7A	70	3-6	TC2501	M-100-25	UHC-102	Fill. Bypass
B	25		TP418	M-100-25	PR325-100	Line Filter
8	.1		TP430	M-100-25	PR325-100	Fill. Bypass
9	.25		TP405	S-4-25	684-.1	Line Filter
10	.002		TP421	S-6-002	684-.002	Output Plate Bypass
11	.01		TP421	S-4-01	TC-11	Audio Coupling
12	.01		TP421	S-4-01	TC-11	" "
13	.02		TP412	S-6-02	TC-12	AVC Filter
14	.01		TP421	S-4-01	TC-11	IF Grid Filter
15	.02		TP412	S-6-02	TC-12	Conv. Screen Bypass
16	100		MC250	MO. 5-31	1FV-31	AF Plate Bypass
17	250		MC240	MO. 5-325	1FV-325	Diode Filter
18	100		MC235	MO. 5-31	1FV-31	Osc. Grid

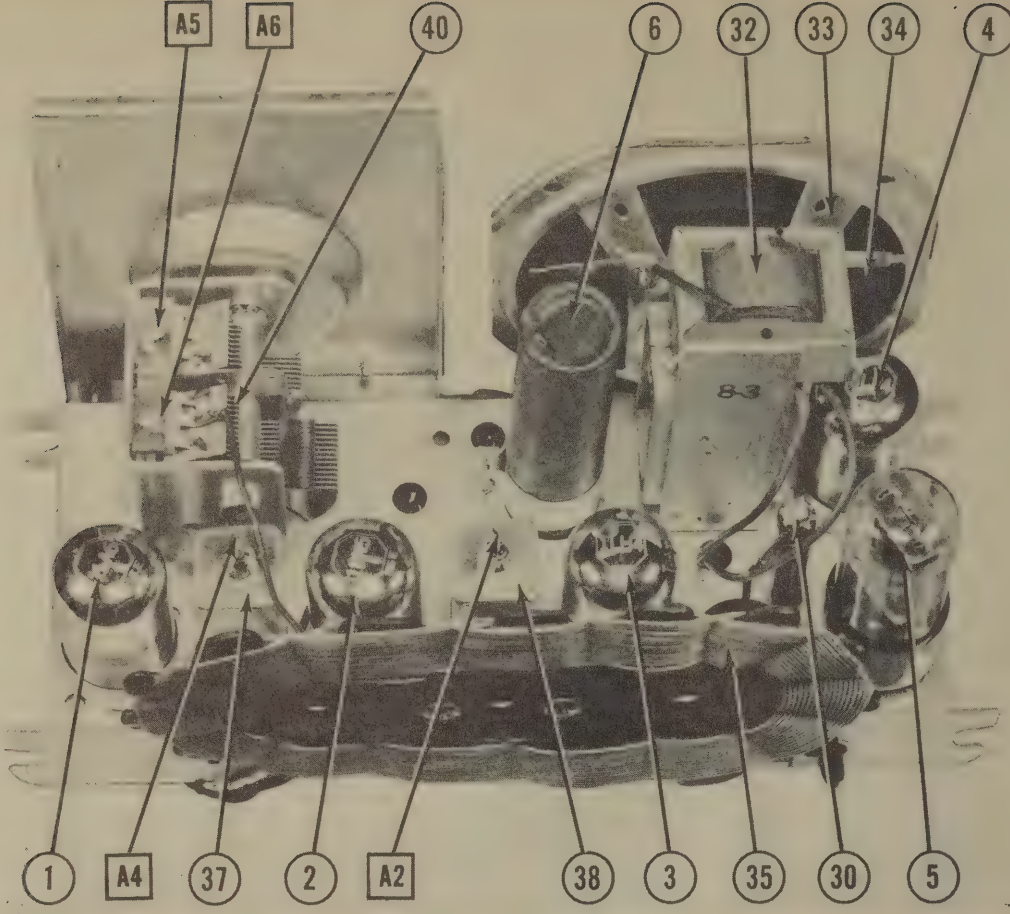
*Do not use bypass section.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		GEN. TELE. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
19A	2 Meg. B Shunt	20-4	MR55	D13-139	M-66-Z	Volume Control
C	Switch	Not Req.	M24	A	SW-A4	Attach to 19A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		GEN. TELE. PART No.	IRC PART No.	
20	250K Ω	1/3	BTS-270K	Red-Grn.-Yl. Oscillator Grid
21	47K Ω	1/3	BTS-47K	Yl.-Vl.-Or. Screen Dropping
22	6 Meg.	1/3	BTS-5.6 Meg.	Blue-Blk.-Grn. IF Grid
23	6 Meg.	1/3	BTS-5.6 Meg.	Blue-Blk.-Grn. IF Grid
24	2.2 Meg.	1/3	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
25	10 Meg.	1/3	BTS-10 Meg.	Er.-Blk.-Blue AF Grid
26	1 Meg.	1/3	BTS-1 Meg.	Er.-Blk.-Grn. AF Plate Load
27	1 Meg.	1/3	BTS-1 Meg.	Blue-Gray-Br. Filament String
28	680 Ω	1/3	BTA-680	Red-Blk.-Red Filter
29	2000 Ω	1	AB-2200	Filament String
30	2300 Ω	1	AB-2300	Filament String
31	10 Ω	1/3	BW-1-10	Er.-Blk.-Blk. Rectifier Ballast



PARTS LIST AND DESCRIPTIONS (Continued)
TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	GEN. TELE. PART No.	STANCOR PART No.	
32	7000Ω	3.1Ω	4303	.5Ω	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	GEN. TELE. PART No.	JENSEN PART No.	
33	3.1Ω	3.1Ω	8-3	ST-1051 Mod. P5-X	*Fabricate new mounting bracket.
34	4-5/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

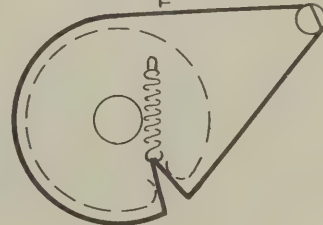
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	GEN. TELE. PART No.	MEISSNER PART No.
35	Loop Ant.	1.5Ω	32.5A	14-1040	
36	Osc. Coil	6Ω	14-1	16-6668	
37	Input IF	10Ω	15-3	16-6669	
38	Output IF	10Ω	15-3		

BATTERIES

ITEM No.	VOLTAGE	GEN. TELE. PART No.	EVEREADY		INSTALLATION NOTES
			"A"	"B"	
39	7.4V "A" 90V "B"			#753 or #754	

MISCELLANEOUS

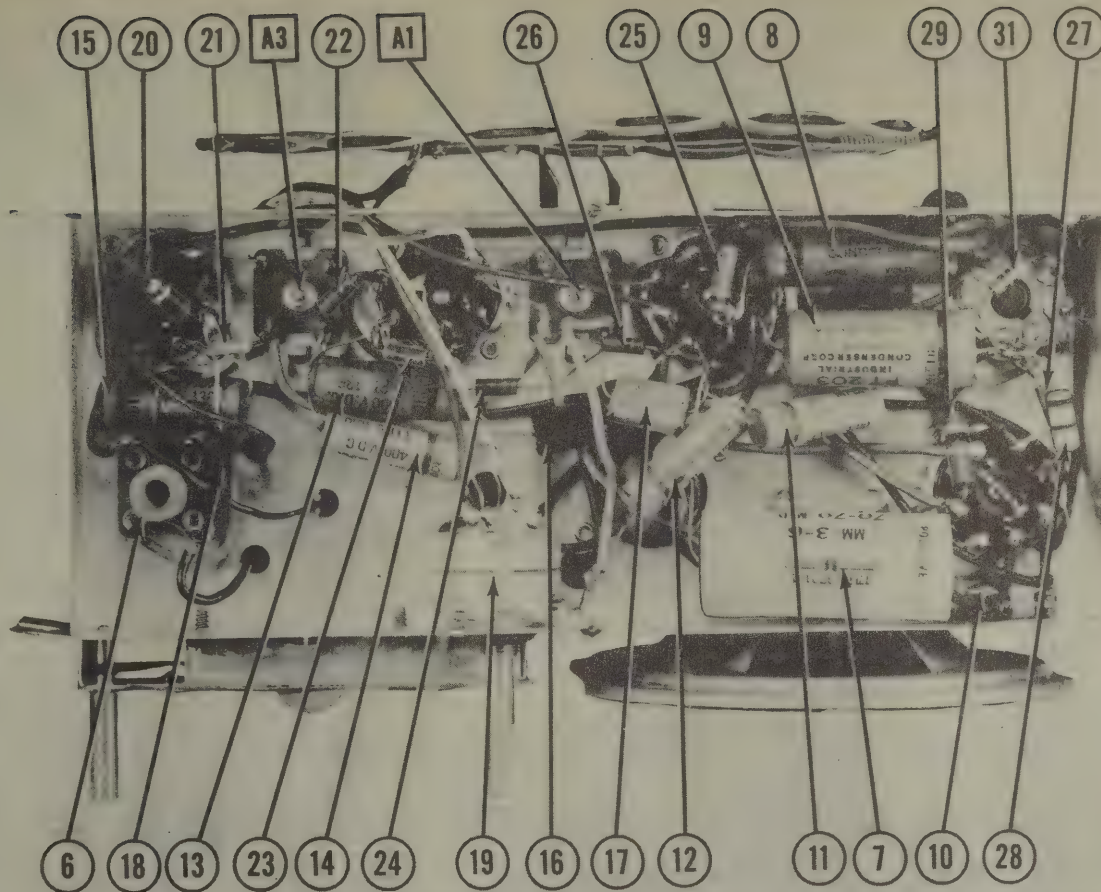
ITEM No.	PART NAME	GEN. TELE. PART No.	NOTES
40	2 Gang Var.Cap.	6-1A	(25-474MCF, 33-191MCF)



2 1/2 TURNS

DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



TRADE NAME Gilfillan, Models 86C, 86P, 86U
MANUFACTURER Gilfillan Bros. Inc., 1815 Venice Blvd., Los Angeles, Calif.
TYPE SET AC Operated 3 Band Superheterodyne Receiver with Loop Antenna (Model 86P has Automatic Record Changer)
TUBES (EIGHT) Types, 6SG7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6SQ7 Phase Inv., (2) 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY 110-120 Volts AC
TUNING RANGE—BROADCAST 540-1600KC
RATING .820 Amps. @ 117V AC
SHORT WAVE 6-12MC. 12-18MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer 1-7/8" from left edge of dial backplate.
 In Steps 1 through 9 ant. switch should be in ant. position (to right). In Step 10 the switch should be in loop position (to left).
 Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
 Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to center stator of tuning cap. Low side to chassis.	455KC	BC (1st position clockwise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2 DIRECT	High side to ant. terminal on ant. terminal strip. Low side to chassis.	455KC	"	"	"	A5	Adjust for minimum output.
3 .01 MFD.	"	1500KC	"	7-3/8" from left edge of dial backplate.	"	A6	Adjust for maximum output.
4 .01 MFD.	"	"	"	Tune for maximum output.	"	A7,A8.	" " " "
5 .01 MFD.	"	600KC	"	"	"	A9	Rock tuning cap. and adjust for maximum output. Repeat Steps 3, 4 and 5 until no further increase in output can be made.
6 400Ω carbon res.	"	12MC	SW I (2nd position clockwise)	7-13/16" from left edge of dial backplate.	"	A10, A11,A12	Adjust for maximum output.
7 "	"	6MC	"	2-1/16" from left end of dial backplate.	"	A13,A14 A15	Adjust for maximum output. Repeat Steps 6 & 7 until no further increase in output is obtained.
8 "	"	18MC	SW II (3rd position clockwise)	7-15/16" from left end of dial backplate.	"	A16,A17 A18	Adjust for maximum output.
9 "	"	12MC	"	2" from left edge of dial backplate.	"	A19,A20 A21	Adjust for maximum output. Repeat Steps 8 & 9 until no further increase in output is obtained.
10 Loop	Loop	1500KC	BC	Tune for maximum output.	"	A22	Ant. switch in loop position (to left). Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

PUSHBUTTON ADJUSTMENTS

1. Turn set on and allow it to warm up for about 15 minutes.
2. Make up a list of stations desired to be set up.
3. Remove buttons by pulling out and loosen button shaft set screws.
4. Manually tune in first station and push any button shaft in completely.
5. Holding shaft in, tighten set screw firmly.
6. Check accuracy of setting by detuning with manual tuning control and re-tuning with pushbutton. If setting is off repeat Steps 3 through 6.
7. To set up the remaining buttons follow the same procedure as outlined above.

HOWARD W. SAMS & CO., INC.

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Indianapolis · Indiana

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		GILFILLAN PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	63G7	63G7	8BK	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Def. AVC-AF	6SQ7	6SQ7	8Q	
5	Phase Inv.	6SQ7	6SQ7	8Q	
6	Power Output	6V6GT	6V6GT	7AC	
7	Power Output	6V6GT	6V6GT	7AC	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		GILFILLAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
9A	20 CAP. 1.0V	86-25	FP238	DY-2X30-450	WR-25	UP2222450	Filter
10	20 CAP. 475			EL-3			
11	8 CAP. 450			M-8-450		PR8450-8	Screen Bypass
12	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	Line Filter
13	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	Output Plate Bypass
14	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	Audio Coupling
15	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	"
16	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	"
17	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	"
18	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	"
19	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	"
20	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	"
21	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	"
22	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	"
23	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	"
24	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	"
25	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	"
26	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	"
27	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	"
28	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	"
29	1. CAP. 600	TP418	TP418	TP418	TC-1	DT8P1	"

10mfd one section and parallel two sections to obtain desired capacity.

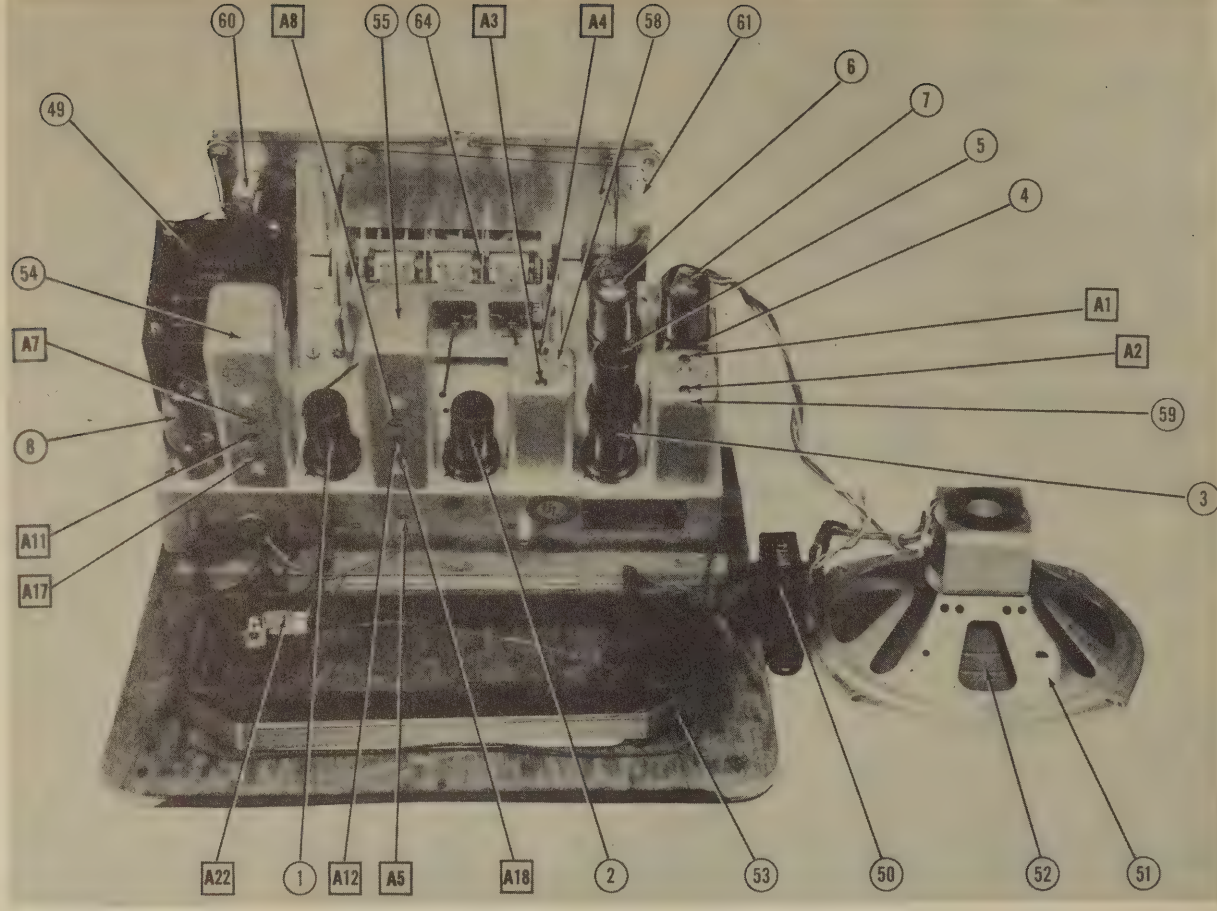
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA					INSTALLATION NOTES
		GILFILLAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.		
30A	500KΩ	A10-23469	MR48	D13-133	M-60-Z		Volume Control
30B	500KΩ	Not Req.	MR48	A	Not Req.		Attach to 30A per instructions
31A	100KΩ	A10-23468	M26	D11-128	M-49-S		Tone Control
31B	100KΩ	Not Req.	Not Req.	A	Not Req.		Attach to 31A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		GILFILLAN PART No.	MALLORY PART No.	IRC PART No.	
32	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
33	120KΩ			BTS-120K	Br.-Red-Yl. AVC Network
34	120KΩ			BTS-120K	Br.-Red-Yl. Converter Grid
35	22KΩ			BTS-22K	Gray-Red-Or. Oscillator Grid
36	82KΩ			BTS-82K	Gray-Red-Or. IF Grid
37	2.2 Meg.			BTS-2.2 Meg.	Red-Red-Grn. AVC Network
38	10KΩ			AB-10K	Screen Dropping
39	4.7 Meg.			BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
40	56KΩ			BTS-56K	Grn.-Blue-Or. AF Plate Load
41	330KΩ			BTS-330K	Or.-Or.-Yl. Volume Control Shunt
42	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. Phase Inverter Grid

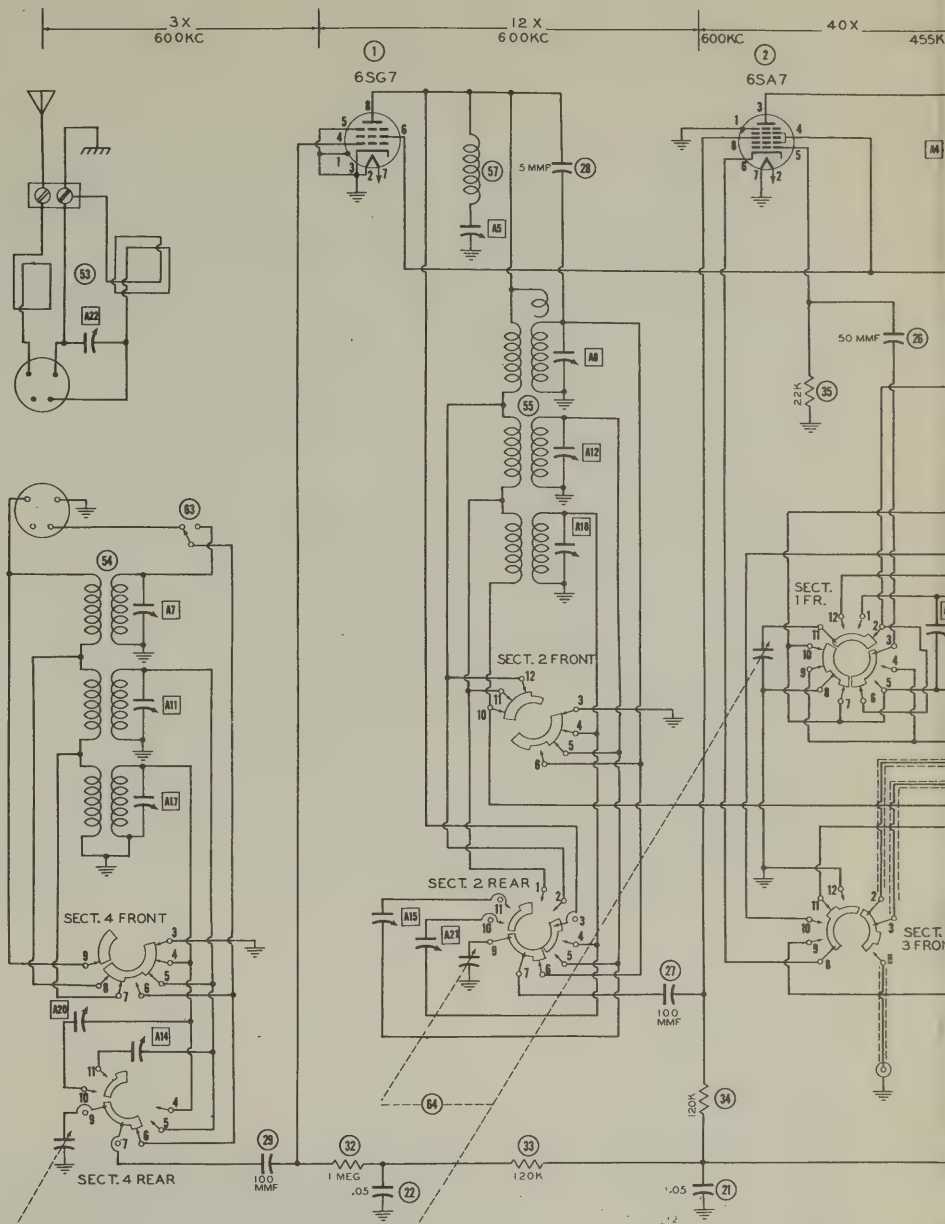
CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW

Figure 1 is a detailed view of the front of the vehicle chassis, showing the engine, transmission, and various components. The components are labeled as follows:

- A15: A component on the left side of the engine area.
- A21: A component on the left side of the engine area, below A15.
- A20: A component on the left side of the engine area, below A21.
- 11: A component on the right side of the engine area, indicated by an arrow.
- 12: A component on the right side of the engine area, indicated by an arrow.



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
1	6SG7	OV.	OV.	OV.	-.7VDC	OV.	95VDC
2	6SA7	OV.	6.5VAC	260VDC	95VDC	-8.5VDC	OV.
3	6SK7	OV.	OV.	OV.	-.6VDC	OV.	95VDC
4	6SQ7	OV.	-.4VDC	OV.	-.5VDC	-.5VDC	180VDC
5	6SQ7	OV.	12VDC	80VDC	OV.	OV.	185VDC
6	6V6GT	OV.	OV.	255VDC	260VDC	OV.	OV.
7	6V6GT	OV.	6.5VAC	255VDC	260VDC	OV.	OV.
8	5Y3GT	OV.	350VDC	OV.	340VAC	OV.	340VAC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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THE COOPERATION OF THE

The stage gain measured values listed above are approximate average operative stage, rather than an absolute value. It should be in mind that it is possible to introduce so many variables into measurement operation, such as, type of equipment used for measurement, and placement of probes, the accuracy of alignment, etc., that reading is impractical. AVC is made inoperative and 3-volts substituted for measurement.

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		GILFILLAN PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	6SG7	6SG7	8BK	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SO7	6SO7	8Q	
5	Phase Inv.	6S07	6S07	8Q	
6	Power Output	6V6GT	6V6GT	7AC	
7	Rectifier	6V6GT	6V6GT	7AC	
8		5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA				CORNELL-DUBIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	GILFILLAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.		
9A	20	475	86-25	FP238	DY-2X30-450	WR-25	UP-2222451	Filter "
B	30	450				EL-3		Screen Bypass
10	3	450			M-8-450	UT-8	BR845	Line Filter "
11	.1	600			TPH-4-1	TC-1	684-1	"
12	.1	600			TP418	TC-1	D76P1	"
13	.003	600			TP406	TC-23	D76D3	Output Plate Bypass
14	.05	600			TP415	S-6-003	D76S5	Audio Coupling
15	.05	600			TP415	S-6-05	D76S5	" "
16	.05	600			TP415	S-6-05	D76S5	" "
17	.01	600			TP410	S-6-01	D76S1	Tone Comp.
18	.01	600			TP410	S-6-01	D76S1	Audio Coupling
19	.1	600			TP418	S-6-1	D76P1	RF Bypass Pwr. Supply
20	.1	600			TP418	S-6-1	D76P1	Screen Bypass
21	.05	200			TP426	S-4-05	D74S5	AVC Filter "
22	.05	200			TP426	S-4-05	D74S5	" "
23	100	500			MC235	MOS-5-31	SW5T1	AF Plate Bypass Cer.
24	20	500			MC230	MOS-5-47	SW547	Fixed Padger Cer. "
25	75	500			MC241	MS-33	SW5T3	" "
26	25	300			MC241	MS-33	SW5T3	Osc. Grid
27	50	500			MC225	MOS-5-45	SW5Q5	RF Coupling Cer.
28	27	100			MC235	MOS-5-31	SW5T1	" "
29	5	500			MC205	MS-55	SW5V5	" "
30	100	500			MC235	MOS-5-31	SW5T1	" "

Tomt one section and parallel two sections to obtain desired capacity.

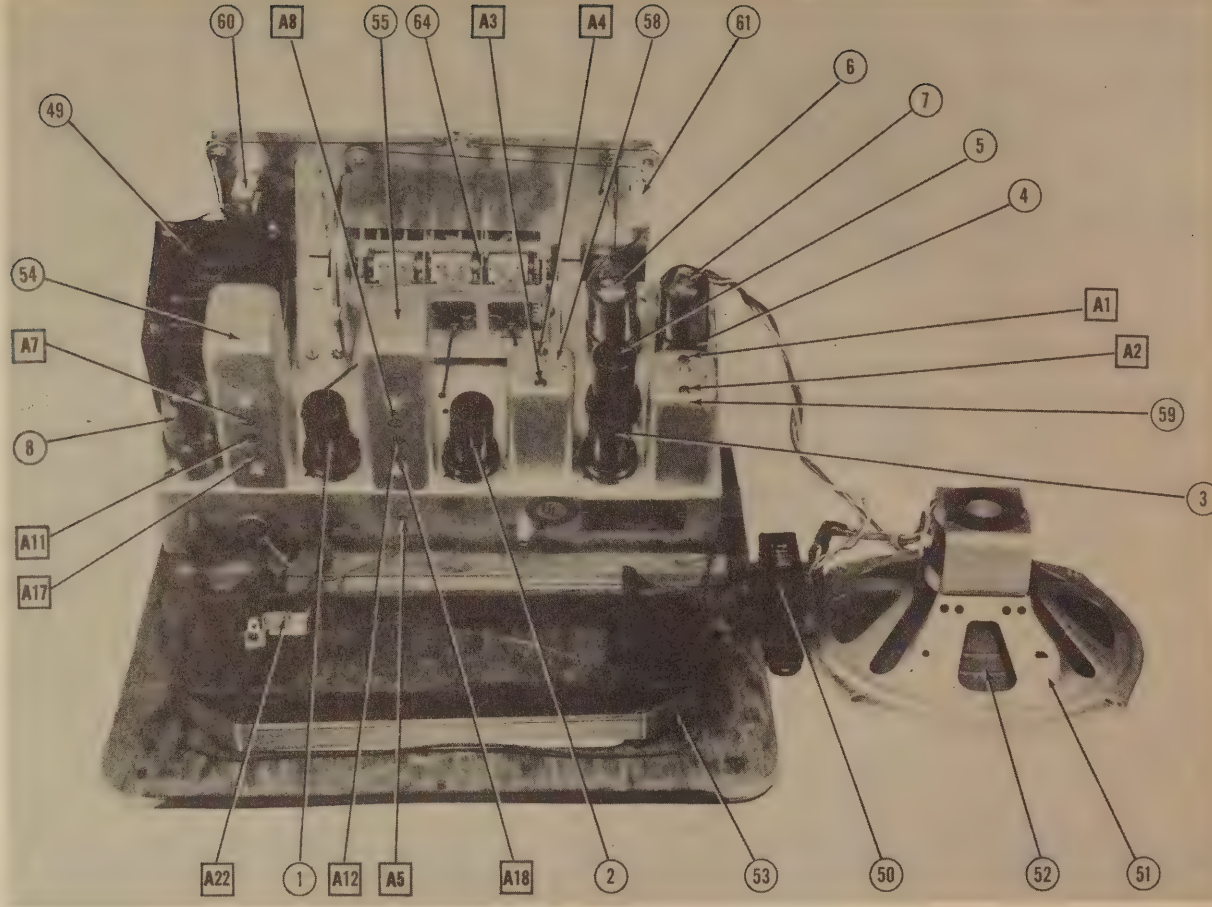
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		GILFILLAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
30A	500KΩ	A10-23469	MR48	D13-133	M-60-Z	Volume Control
30B	500KΩ	Not Req.	M26	A	Not Req.	Attach to 30A per instructions
31A	100KΩ	A10-23468	MR41	D11-128	M-49-S	Tone Control
31B	100KΩ	Not Req.	Not Req.	A	Not Req.	Attach to 31A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		GILFILLAN PART No.	IRC PART No.	
32	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
33	120KΩ		BTS-120K	Br.-Red-Yl. AVC Network
34	120KΩ		BTS-120K	Br.-Red-Yl. Converter Grid
35	22KΩ		BTS-22K	Br.-Red-Or. Oscillator Grid
36	82KΩ		BTS-82K	Gray-Red-Or. IF Grid
37	2.2 Meg.		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
38	10KΩ		AB-10K	Screen Dropping
39	4.7 Meg.		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
40	56KΩ		BTS-56K	Grn.-Blue-Or. AF Plate Load
41	330KΩ		BTS-330K	Or.-Or.-Yl. Volume Control Shunt
42	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. Phase Inverter Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	GILFILLAN PART No.	IRC PART No.	
43	100KΩ	1/4		BTS-100K	Br.-Blk.-Grn. Phase Inverter Cathode
44	100KΩ	1/4		BTS-100K	Br.-Blk.-Grn. Phase Inverter Plate Load
45	220KΩ	1/4		BTS-220K	Red-Red-Yl. Output Grid
46	220KΩ	1/4		BTS-220K	Red-Red-Yl. " "
47	220Ω	1		BW-1-220	Red-Red-Br. Output Cathode
48	4000Ω	5		AB-4K	Filter-See Note

Note-Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	GILFILLAN PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
49	117V AC @ .82A	680V CT	5.1V AC	6.5V AC	86-19	P-6013*	T22R05	P-2953*

*Mount vertically with universal mounting brackets.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GILFILLAN PART No.	STANCOR PART No.	THORDARN PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
50	11 000Ω CT	3.5Ω	780Ω CT	.4Ω		A-3870	T22856	A-2936+	*Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC IMP.	GILFILLAN PART No.	JENSEN PART No.	
51A	1000Ω	3.5Ω	86U-2	ST-175	
B			86C/P-7	Mod. F8-T	
52	CONE DIA. 7-3/8"	VC DIA. 3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		Alternate 10" speaker used in models 86P and 86C.

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	GILFILLAN PART No.	MEISSNER PART No.	
53A	Loop Ant.	0Ω	1.5Ω	86U-4		Item 53A used in Model 86U
B	" "	" "	1.5Ω	86P-4		" 53B " " " 86P
C	" "	" "	" "	86C-4		" 53C " " " 86C
54ABC	Ant.Coil	72Ω	5Ω	86-13		Items 54A, 54B and 54C are in same can.
BSW	" "	.5Ω	.3Ω			
CSW	" "	.3Ω	.1Ω			
55ABC	RF Coil	75Ω	5Ω	86-14		Items 55A, 55B and 55C are in same can.
BSW	" "	3.5Ω	.3Ω			
CSW	" "	.5Ω	.1Ω			
56ABC	Osc.Coil	1.8Ω	12Ω	86-12		Items 56A, 56B and 56C are wound on same form.
BSW	" "	.3Ω	.1Ω			
CSW	" "	.1Ω	.1Ω			
57	Wave Trap	75Ω		86-36		
58	Input IF	30Ω	30Ω	86-34	16-6659	
59	Output IF	30Ω	30Ω	86-35	16-6670	

PARTS LIST AND DESCRIPTIONS (Continued)
DIAL LIGHT

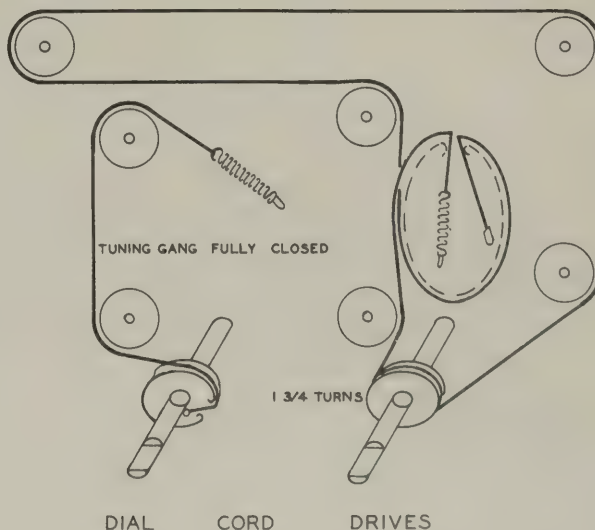
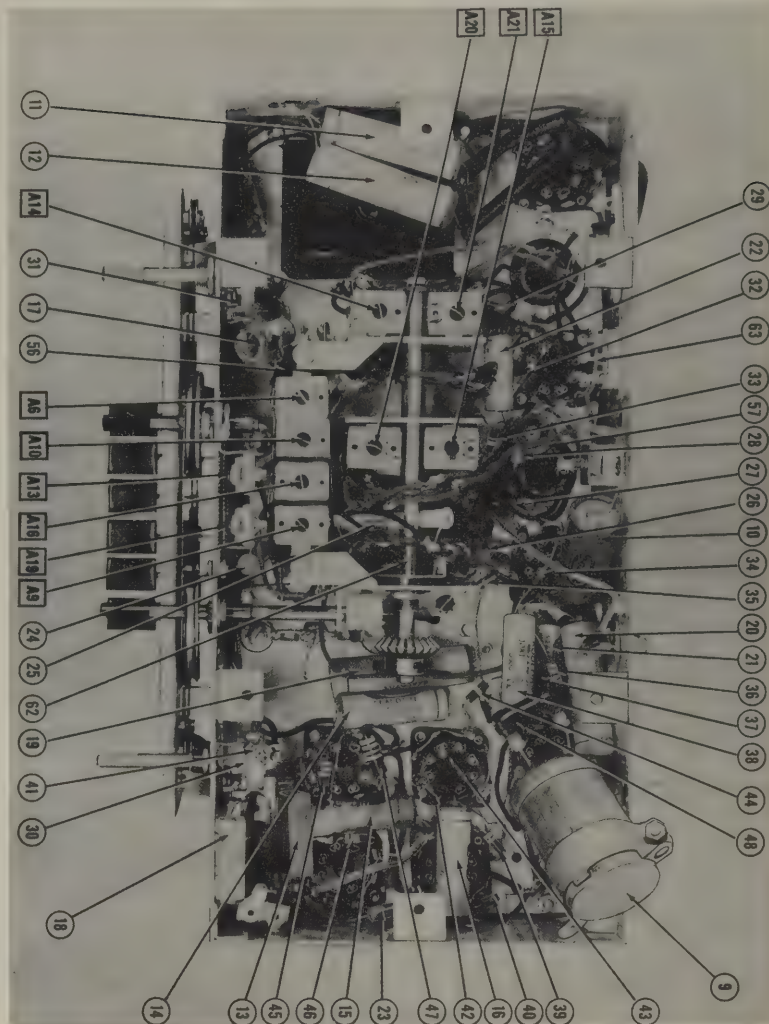
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GILFILLAN PART No.		
60	Screw	7.5	0.2	White			Type 50
61	"	"	"	"			"

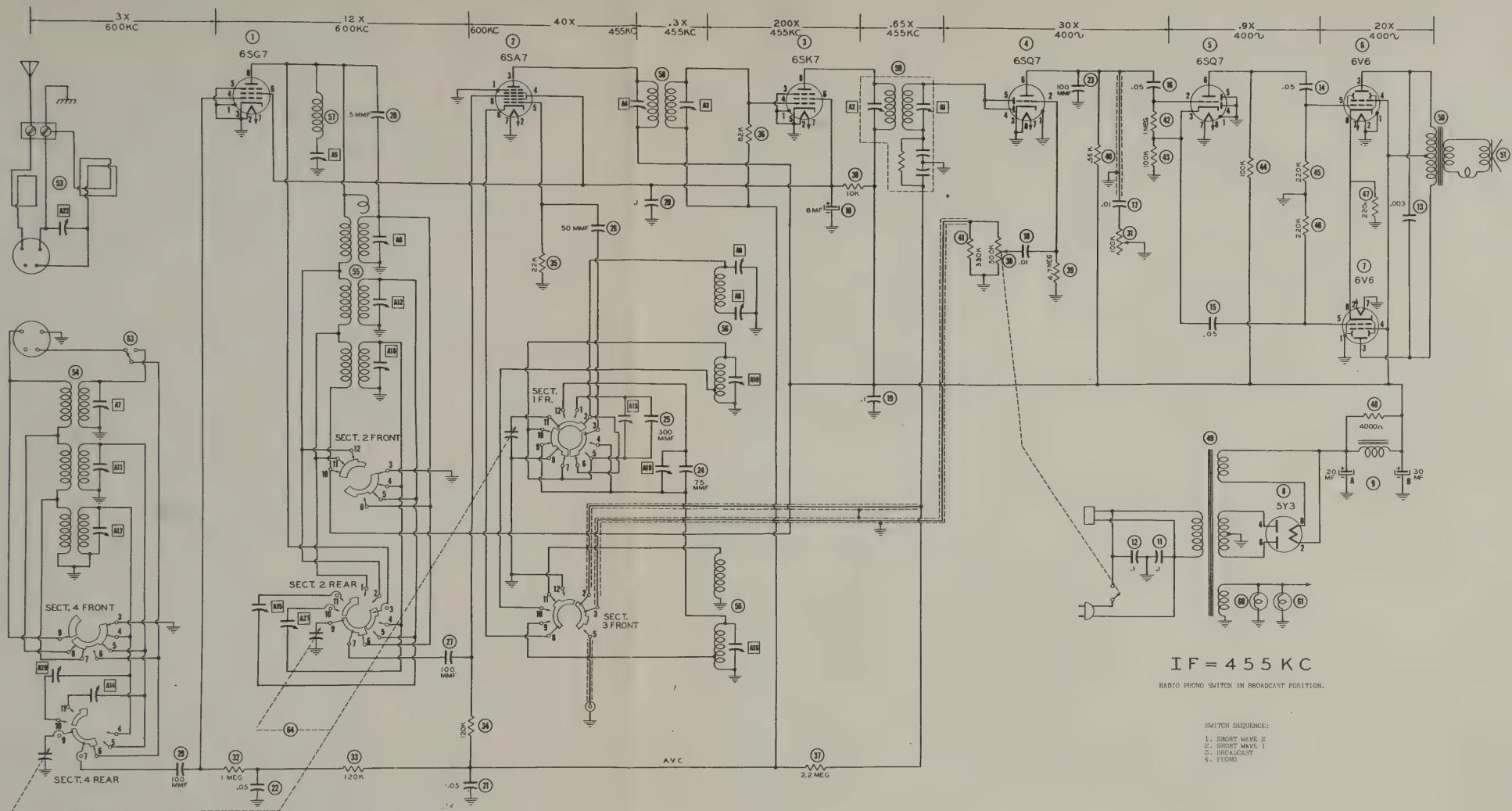
MISCELLANEOUS

ITEM No.	PART NAME	GILFILLAN PART No.	NOTES
62	Switch	86-5	Wave Band-Phono
63	"	"	Loop Antenna
64	3 Gang Var. Cap.	86-15	452TTF each section



CHASSIS—BOTTOM VIEW





VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0V.	0V.	0V.	-.7VDC	0V.	95VDC	6.5VAC	260VDC
2	6SA7	0V.	6.5VAC	260VDC	95VDC	-.5VDC	0V.	0V.	-1VDC
3	6SK7	0V.	0V.	0V.	-.6VDC	0V.	95VDC	6.5VAC	260VDC
4	6SQ7	0V.	-.4VDC	0V.	-.5VDC	-.5VDC	180VDC	6.5VAC	0V.
5	6SQ7	0V.	12VDC	80VDC	0V.	0V.	185VDC	0V.	6.5VAC
6	6V6GT	0V.	0V.	255VDC	260VDC	0V.	0V.	6.5VAC	16.5VDC
7	6V6GT	0V.	6.5VAC	255VDC	260VDC	0V.	0V.	0V.	16.5VDC
8	5Y3GT	0V.	350VDC	0V.	340VAC	0V.	340VAC	0V.	350VDC

STAKEN WITH VACUUM TUBE VOLTMETER.

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0Ω	0Ω	0Ω	4 Meg.	0Ω	110KΩ	.1Ω	100KΩ
2	6SA7	0Ω	.1Ω	100KΩ	110KΩ	20KΩ	1.5Ω	0Ω	3 Meg.
3	6SK7	0Ω	0Ω	0Ω	2.8 Meg.	0Ω	110KΩ	.1Ω	100KΩ
4	6SQ7	0Ω	5 Meg.	0Ω	240KΩ	240KΩ	4.8 Meg.	.1Ω	0Ω
5	6SQ7	0Ω	1.2 Meg.	100KΩ	0Ω	0Ω	200KΩ	0Ω	.1Ω
6	6V6GT	0Ω	0Ω	100KΩ	100KΩ	220KΩ	0Ω	.1Ω	220Ω
7	6V6GT	0Ω	.1Ω	100KΩ	100KΩ	220KΩ	1NΩ	0Ω	220Ω
8	5Y3GT	1NΩ	100KΩ	1NΩ	105Ω	1NΩ	110Ω	1NΩ	100KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

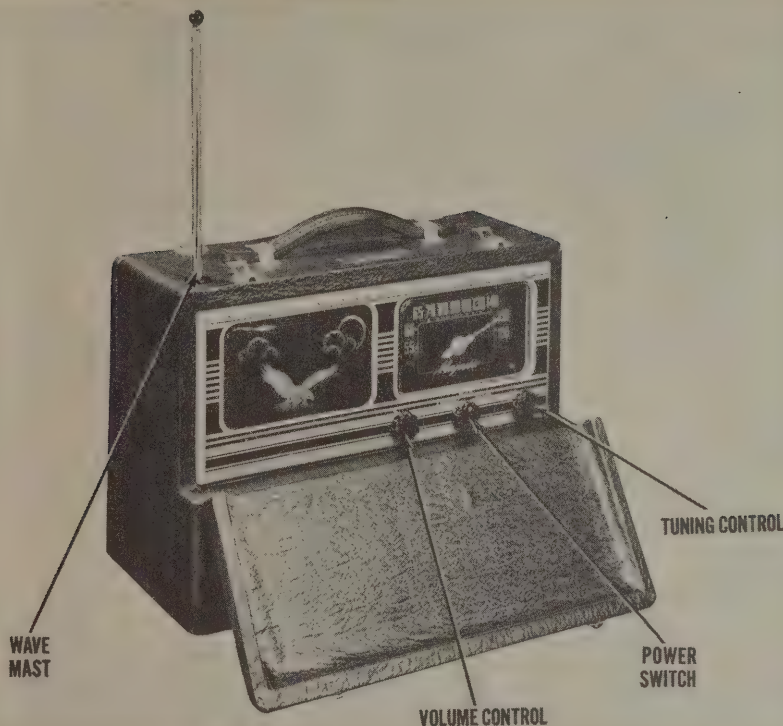
A PHOTOFAC STANDARD NOTATION SCHEMATIC
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THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

4716-16



MAJESTIC MODEL 7P420

TRADE NAME	Majestic, Model 7P420 (Ch. 4705)
MANUFACTURER	Majestic Radio & Tel. Corp., ST. Charles, Ill.
TYPE SET	Three Power Portable Superheterodyne with Loop Antenna
TUBES (SEVEN)	Types, 1U4 RF Amp., 1R5 Converter, 1U4 IF Amp., 1R5 Det.-AVC-AF, 3Q4 Power Output (Battery), 50B5 Power Output (AC), 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC or 9V "A" Supply and 90V "B" Supply
RATING	.250 Amps. @ 117V AC or 48MA @ 9V DC and 14MA @ 90V DC
TUNING RANGE-BROADCAST	550-1670KC

ALIGNMENT INSTRUCTIONS-READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer parallel with base of dial. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with the low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD	High side to Pin 6 (grid) 1R5. Low side to B-.	455KC	High freq. end of dial at a point of non-interference.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation, transformer reduce dummy ant. to 200MMF to reduce hum modulation.
2		Loop	1500KC	1500KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. The trimmer opposite A5 on the osc. section is a factory adjustment and need not be adjusted unless receiver will not calibrate.
3		"	"	Tune for maximum output.	"	A6	Adjust for maximum output. Replace in cabinet.
4		"	"	"	"	A7	Adjust for maximum output.

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DATE 10/47

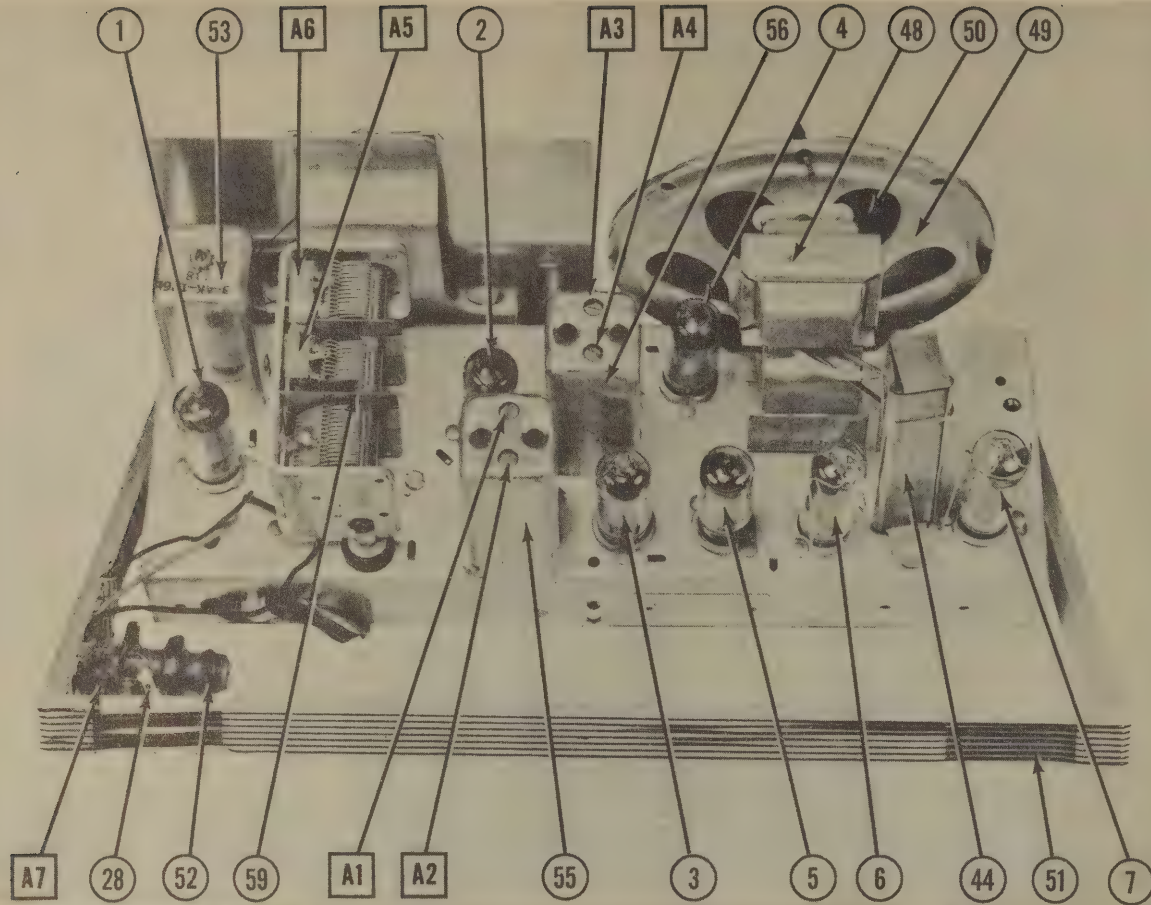
SET #26

FOLDER #4716-17

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

MAJESTIC MODEL
7F420 (Ch. 4705)
BATTERY OPERATED

CHASSIS—TOP VIEW



ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		MAJESTIC PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp. Converter	1U4	1U4	6AR	
2	IF Amp.	1R5	1R5	7AT	
3	IF Amp.	1U4	1U4	6AR	
4	Power Output-Det.-AVC-AF	1S5	1S5	6AU	
5	Batt.	3Q4	3Q4	7BA	
6	Power Output-AC	50B5	50B5	7BZ	
7	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MAJESTIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
8A	100 CAP. 150 VOLT	19-57		TSB-8040-150		FEZ555150V Filter - Red
9	10 .05	5-64	TP426	M-250-12	TC-15	BRC1225 Fil. Bypass Yellow
10	10 .05	5-40	TP428	MFH-4-05	TC-15	D74S5 Line Filter
11	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
12	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
13	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
14	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
15	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
16	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
17	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
18	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
19	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
20	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
21	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
22	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
23	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
24	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
25	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
26	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
27	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter
28	10 .05	5-39	TP428	S-4-05	TC-15	D74S5 Line Filter

†Parallel sections to obtain desired capacity-Omit bypass.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MAJESTIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
29A	500KΩ	13-17	MR48	D13-133	M-60-Z	Volume Control
B	Shaft	Not Req.	Not Req.	A	Not Req.	Attach to 29A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		MAJESTIC PART No.	IRC PART No.	MAJESTIC PART No.	
30	2.2 Meg.	9-114	BTS-2-2	BTS-2-2	Red-Red-Grn. RF Grid
31	3.3 Meg.	9-315	BW-3-3	BW-3-3	Or.-White-Br. Filament String
32	3.3 Meg.	9-315	BW-3-3	BW-3-3	Or.-Or.-Grn. Converter Grid
33	3.3 Meg.	9-315	BW-3-3	BW-3-3	Br.-Blk.-Yl. Oscillator Grid
34	10KΩ	9-304	BTS-100K	BTS-100K	Br.-Red-Or. Converter Screen Dropping
35	1 Meg.	9-255	BTS-12K	BTS-12K	Br.-Blk.-Grn. AVC Network
36	470KΩ	9-223	BTS-470K	BTS-470K	Yl.-Vl.-Yl. If Grid
37	47KΩ	9-306	BTS-47K	BTS-47K	Yl.-Vl.-Or. Diode RF Filter
38	10 Meg.	9-213	BTS-10	BTS-10	Br.-Blk.-Blue AF Grid
39	3.3 Meg.	9-221	BTS-3.3	BTS-3.3	Or.-Or.-Grn. AF Screen Dropping
40	1 Meg.	9-255	BTS-1	BTS-1	Br.-Blk.-Grn. AF Plate Load
41	470KΩ	9-223	BTS-470K	BTS-470K	Yl.-Vl.-Yl. Output Grid
42	270Ω	9-310	BW-270	BW-270	Red-Vl.-Br. Filament String
43	56Ω	9-314	BW-56	BW-56	Grn.-Blue-Blk. Output Cathode
44	220Ω	9-204	BW-220	BW-220	Line Dropping
45	27Ω	9-216	BTA-27	BTA-27	Red-Vl.-Blk. Rectifier Ballast
46	120Ω	9-216	BTA-120	BTA-120	Br.-Red-Red Filter
47	510Ω	9-317	BT-510	BT-510	Grn.-Br.-Red Bleeder

PARTS LIST AND DESCRIPTIONS (Continued) **TRANSFORMER (OUTPUT)**

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	PRI. SEC.	DC RES.	MAJESTIC PART No.	STANCOR PART No.	MERIT PART No.	
48	5000Ω	3.6Ω	430Ω				
	tapped		tapped				
	2200Ω		220Ω				

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	MAJESTIC PART No.	JENSEN PART No.		
49	PM	3.8Ω	22-9	ST-1071		†Fabricate new mounting bracket.
50	CONE DIA. 1/2"	1/2"		Mod. PS-V		

NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

R F COILS

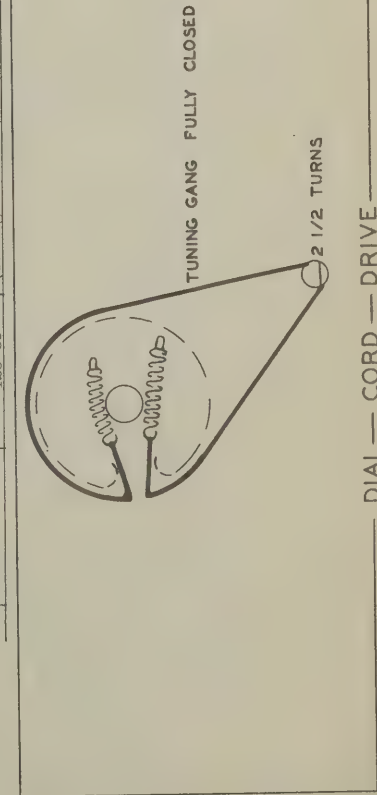
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	MAJESTIC PART No.	MEISSNER PART No.
51	Loop Ant.	53Ω	.2Ω	20-12	
52	Ant. Coil	3Ω	3Ω	3-126	
53	RF Coil	75Ω	2.5Ω	3-125	14-1040
54	RF Coil	2.5Ω	6Ω	3-127	18-6666
55	Input IF	26Ω	27Ω	3-128	18-6667
56	Output IF	27Ω	26Ω		

BATTERIES

ITEM No.	VOLTAGE	MAJESTIC PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
57	9V "A"					
	90V "B"				#754	

MISCELLANEOUS

ITEM No.	PART NAME	MAJESTIC PART No.	NOTES
58	Switch Var. Cap	11-62 or 11-49	Power 22-465, 35-203 MTP
59	Antenna Mast	7-13	
60	Antenna Plate	20-25	
61	Dial Scale	20-15	
	Dial Pointer	117-45	
	Cabinet Knob	138-15	
		116-13	(Power Switch)
		128-59	(Tuning & Volume)
		128-58	



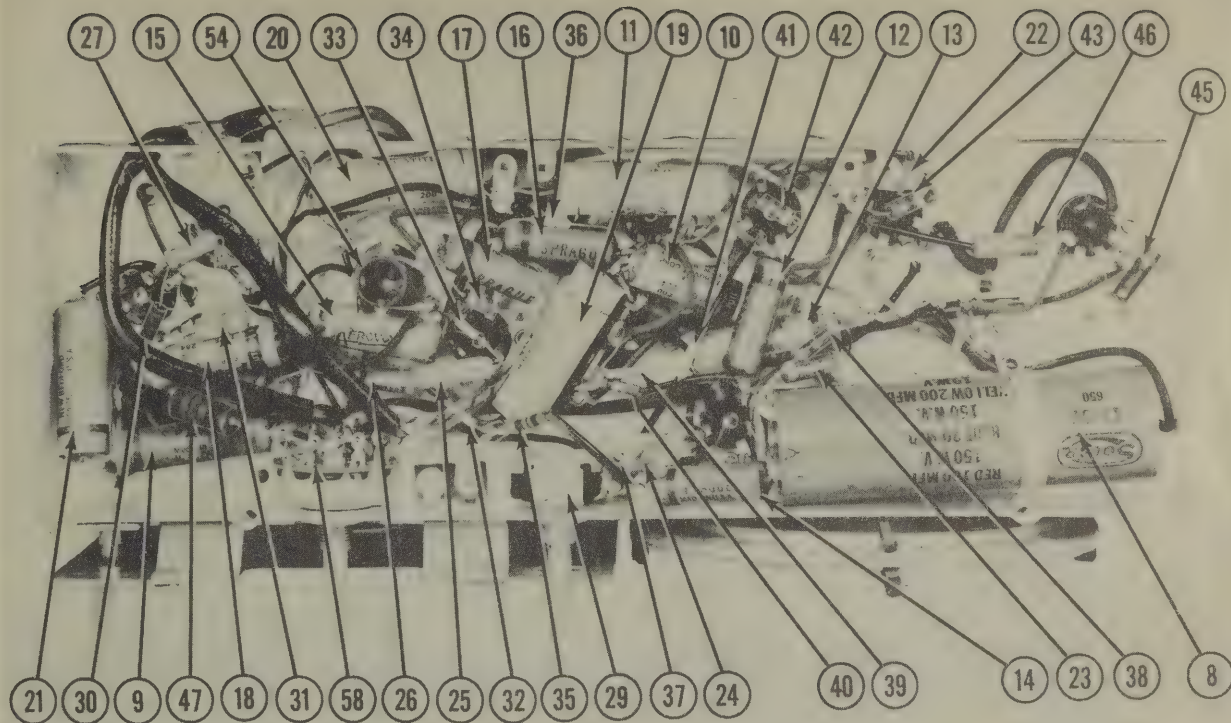
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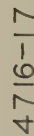
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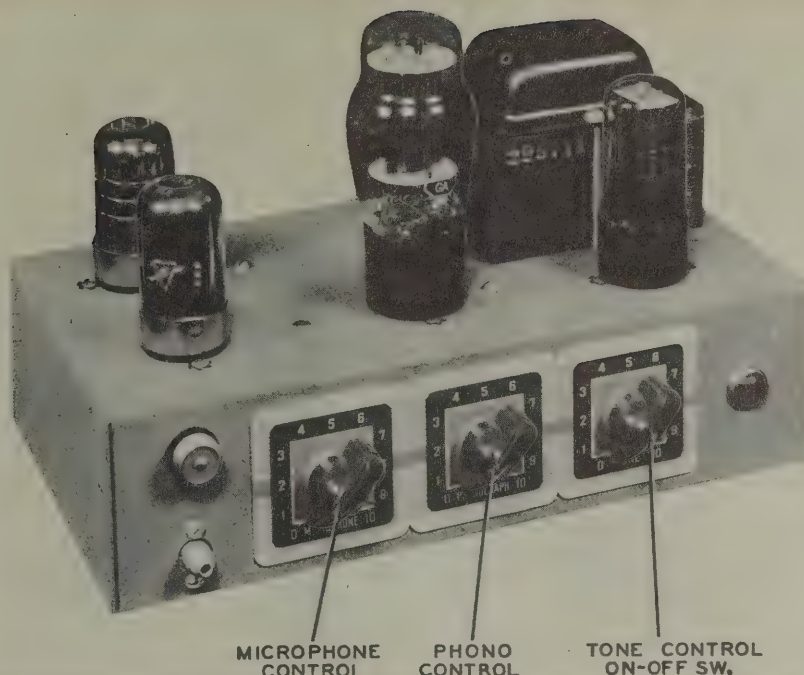
7P420 (Ch. 4705)
BATTERY OPERATED

PAGES 10, 100, 1000
7P420 (Ch. 4705)
BATTERY OPERATED

CHASSIS—BOTTOM VIEW







MASCO MODEL MA-808

TRADE NAME	Masco, Model MA-808
MANUFACTURER	Mark Simpson Co., 32-28 49th St., Long Island City, N.Y.
TYPE SET	AC Operated 2 Channel Four Tube Amplifier
TUBES (FOUR)	Types, 7B4 Mic. Amp., 7C7 Audio Amp., 6L6GA Power Output, 5Y3GT Rectifier.
POWER SUPPLY	.610 Amps. @ 117V AC
RATING	110-120 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B4	6.4VAC	120VDC	0V.	0V.	0V.	-.7VDC	0V.	0V.
2	7C7	6.4VAC	90VDC	50VDC	0V.	0V.	0V.	1.3VDC	0V.
3	6L6G	0V.	0V.	320VDC	290VDC	0V.	90VDC	6.4VAC	16VDC
4	5Y3GT	0V.	325VDC	0V.	320VAC	0V.	320VAC	117VAC	325VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B4	.1Ω	325KΩ	INF.	INF.	0Ω	15 MEG.	0Ω	0Ω
2	7C7	.1Ω	325KΩ	1.1 MEG.	0Ω	0Ω	360KΩ	1KΩ	0Ω
3	6L6G	0Ω	0Ω	100KΩ	105KΩ	500KΩ	325KΩ	.1Ω	200Ω
4	5Y3GT	INF.	100KΩ	INF.	125Ω	INF.	125Ω	INF.	100KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

MASCO MODEL
MA-508

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		MASCO PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	Mic. Amp.	7B4	7B4	SAC	
2	Audio Amp.	7C7	7C7	8V	
3	Power Output	6L6GA	6L6GA	7AC	
4	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

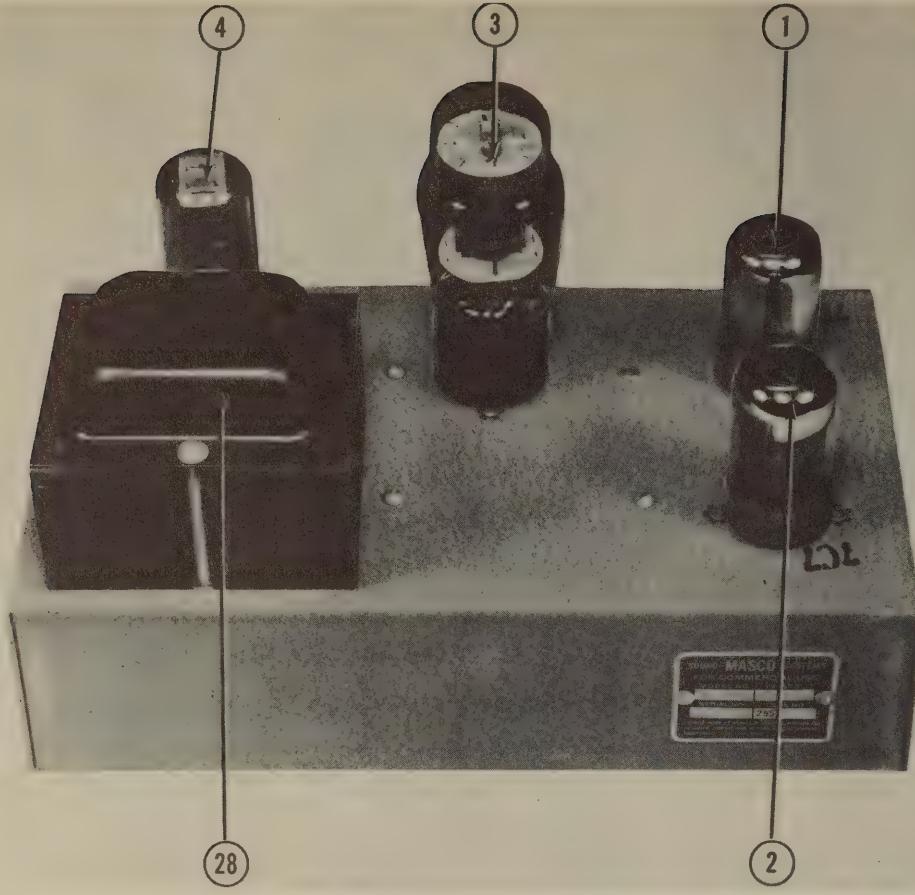
ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		MASCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
5A	8 CAP.		BRL8845	2N518	M-2X8-450	UT-88	PRSA450-8-8 Filter - Red
6	16		BR1645	TC74	M-16-450	UT-16	PRS450-16 Cath. Bypass
7	10		BR105	TC32	M-10-50	TA-S10	PRS50-10 Tone Compensation
8	10		BR105	TC32	M-10-50	TA-S10	PRS50-10 Audio Coupling
9	.01		DT4S1	TP421	S-4-01	TC-11	684-01 Audio Screen Bypass
10	.005		DT6D5	TP408	S-6-005	TC-25	684-005 Audio Coupling
11	.1		DT6P1	TP418	S-6-1	TC-1	684-1 Mic. Coupling
12	.005		DT6D5	TP408	S-6-005	TC-25	684-005
13	.005		DT6D5	TP408	S-6-005	TC-25	684-005

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MASCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
14A	500KΩ		MR43	D13-133	M-60-Z	Mic. Volume Control
B	500KΩ		Not Req.	A	Not Req.	Attach to 14A per instructions
15A	500KΩ		MR43	D13-133	M-60-Z	Phono Volume Control
B	500KΩ		Not Req.	A	Not Req.	Attach to 15A per instructions
16A	500KΩ		MR43	D13-133	M-60-Z	Tone Control
B	500KΩ		Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch		125	41	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		MASCO PART No.	MALLORY PART No.	IRC PART No.	
17	15 Meg.			BTS-15 Meg.	Br.-Grn.-Blue Mic. Amp. Grid
18	220KΩ			BTS-220K	Red-Red-Yl. Mic. Amp. Plate Load
19	220KΩ			BTS-220K	Red-Red-Yl. Isolation
20	220KΩ			BTS-220K	Red-Red-Yl. Isolation
21	1000Ω			BTS-1000	Br.-Blk.-Red Af Cathode
22	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. Af Screen
23	220KΩ			BTS-220K	Red-Red-Yl. Af Plate
24	10KΩ			BTS-10K	Br.-Blk.-Grn. Feedback
25	200Ω			AB-200	Grn.-Blk.-Red Output Cathode
26	500Ω			BTS-4700	Grn.-Blk.-Red Filter



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (1000 u)	MASCO PART NO.	STANCOR PART NO.	MERIT PART No.
27	.032A	130Ω	3.2 Henries	C-178	C-2303	T20054

*Drill one new mounting hole.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA			MERIT PART No.
	PRI.	SEC. 1	SEC. 2	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.	
28	117V AC 640V CT 5.1V AC 6.4V AC @ 1.5A	.092A @ 2.0A	.092A @ 1.5A	A-8-D	P-6012*	T22R04*	P-2952 *

*Drill new mounting holes.

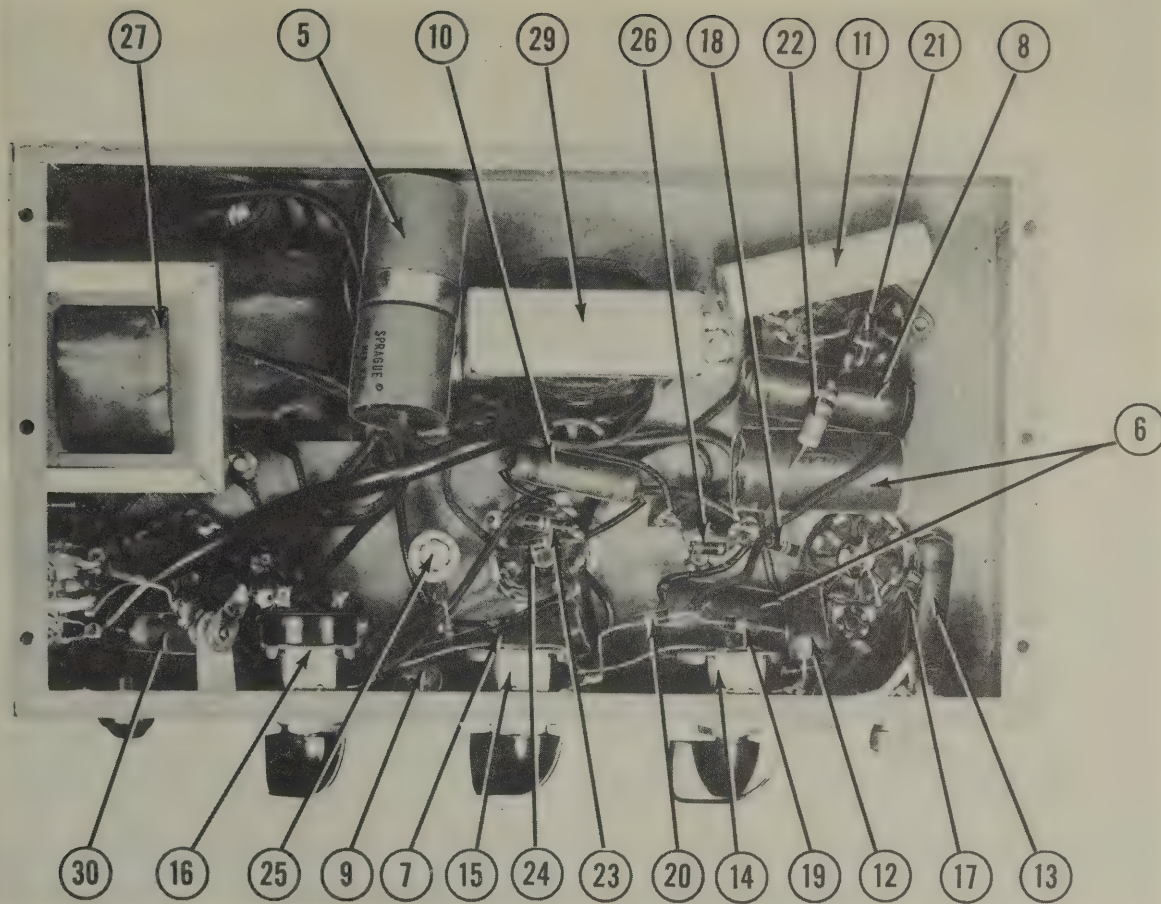
TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	SEC.	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.	
29	3500Ω	4Ω	130Ω	0-8	A-3825	T22S60	A-3825

DIAL LIGHT

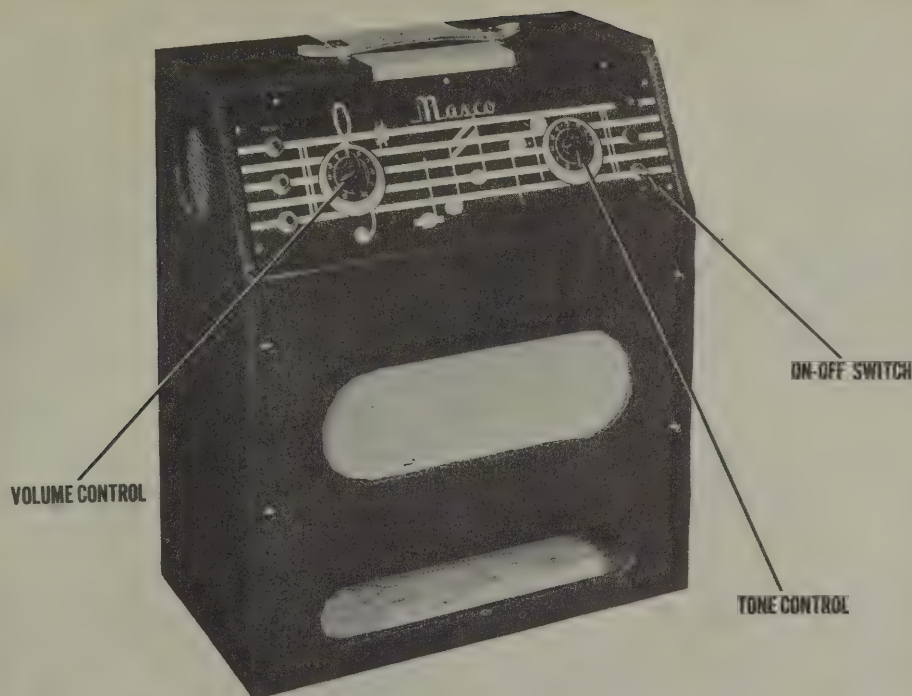
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MASCO PART No.	THORDARSON PART No.	
30	Bayonet	6-8	0.15	Brown			Type 47

CHASSIS—BOTTOM VIEW



MASCO MODEL
MA-808

MASCO MODEL
MA-808



MASCO MODEL MAP-15

TRADE NAME	Masco, Model MAP-15
MANUFACTURER	Mark Simpson Co., 32-28 49th St., Long Island City, N.Y.
TYPE SET	AC Operated 3 Channel 5 Tube Amplifier with Speaker
TUBES (FIVE)	Types, 6SL7 or 7F7 AF Amp., 6SL7 or 7F7 AF Amp.-Phase Inv., (2) 6L6GA Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	.900 Amp. @ 117V AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SL7	OV.	70VDC	.9VDC	OV.	70VDC	OV.	6.6VAC	OV.
2	6SL7	OV.	122VDC	1.5VDC	OV.	125VDC	1.5VDC	6.6VAC	OV.
3	6L6GA	OV.	OV.	320VDC	320VDC	OV.	OV.	6.6VAC	25VDC
4	6L6GA	OV.	OV.	320VDC	320VDC	OV.	OV.	6.6VAC	25VDC
5	5Y3GT	OV.	340VDC	OV.	335VAC	OV.	335VAC	OV.	340VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SL7	100KΩ	330KΩ	2KΩ	15 Meg.	330KΩ	0Ω	.1Ω	0Ω
2	6SL7	520KΩ	320KΩ	1KΩ	12KΩ	320KΩ	1KΩ	.1Ω	0Ω
3	6L6GA	INF.	0Ω	90KΩ	90KΩ	550KΩ	INF.	.1Ω	200Ω
4	6L6GA	0Ω	0Ω	90KΩ	90KΩ	520KΩ	INF.	.1Ω	200Ω
5	5Y3GT	INF.	90KΩ	INF.	54Ω	INF.	50Ω	INF.	90KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

MASCO
MODEL 12-P-15

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		MASCO PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1A AF Amp.		6SL7 7F7	6SL7 7F7	8BD	
2A AF Amp.-Phase Inv.		6SL7 7F7	6SL7 7F7	8BD	
3 Power Output		6L6GA	6L6GA	8AC	
4		6L6GA	6L6GA	7AC	
5 Rectifier		5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MASCO PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6	16 450	ST597	M-16-450	UT-16	PRS450-16	Filter
7	16 450	2N518	M-16-450	UT-16	PRS450-16	Filter
8A	8 450		M-2X8-450	UT-88	PRS450-8-8	Filter
9	10 50	TC32	M-10-50	TA-510	PRS50-10	Cathode Bypass
10	10 50	TP418	M-10-50	TA-510	PRS50-10	Cathode Bypass
11	.01 600	TP418	MP4-61	TC-1	684-1	Line Filter
12	.01 600	TP410	S-6-01	TC-11	684-01	Audio Coupling
13	.01 600	TP421	S-6-01	TC-11	684-01	Audio Coupling
14	.01 600	TP410	S-6-01	TC-11	684-01	Tone Compensation
15	.01 600	TP410	S-6-01	TC-11	684-01	Audio Coupling
16	.005 600	TP408	S-6-005	TC-25	684-005	Filter

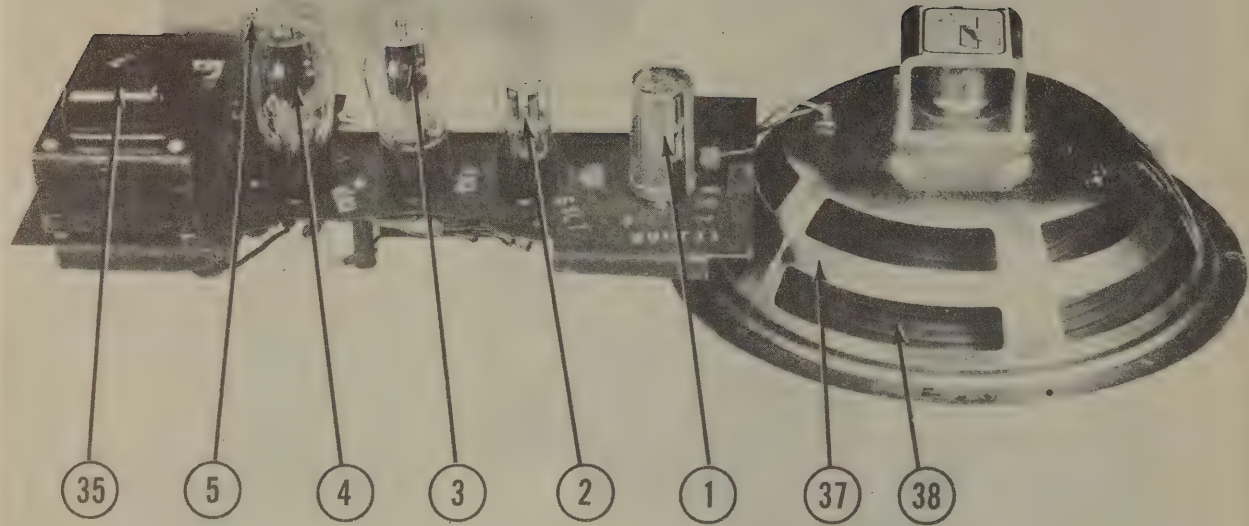
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MASCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A 500KΩ	1	MR-48	Not Req.	D13-133	AM-60-Z	Volume Control
18A 500KΩ	1	MR-48	Not Req.	D13-133	AM-60-Z	Tone Control
18 Shaft						Attach to 17A per instructions
18 Shaft						Attach to 18A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		MASCO PART No.	IRC PART No.	MASCO PART No.	
19 220KΩ	1/2 W	BTS-220K		BTS-220K	Red-Red-Vl. Series Input
20 220KΩ	1/2 W	BTS-220K		BTS-220K	Red-Red-Vl. Series Input
21 1 Meg.	1/2 W	BTS-15 Meg.		BTS-15 Meg.	Br.-Blk.-Grn. AF Grid
22 15 Meg.	1/2 W	BTS-15 Meg.		BTS-15 Meg.	Br.-Grn.-Grn. " "
23 2000Ω	1/2 W	BTS-220K		BTS-220K	Red-Blk.-Red AF Cathode
24 220K	1/2 W	BTS-220K		BTS-220K	Red-Red-Vl. AF Plate Load
25 1000Ω	1/2 W	BTS-1000		BTS-1000	Brn.-Blk.-Red AF-Phase Inverter Cathode
26 220K	1/2 W	BTS-220K		BTS-220K	Red-Red-Vl. AF Plate Load
27 220K	1/2 W	BTS-220K		BTS-220K	Red-Red-Vl. Phase Inverter Plate Load
28 12K	1/2 W	BTS-12K		BTS-12K	Brn.-Red-Or. Phase Inverter Grid
29 500K	1/2 W	BTS-470K		BTS-470K	Grn.-Blk.-Vl. Output Grid
30 500K	1/2 W	BTS-470K		BTS-470K	Grn.-Blk.-Vl. Output Grid
31 200Ω	1/2 W	AB-200		AB-200	Red-Red-Or. Output Cathode
32 12K	1/2 W	BTS-12K		BTS-12K	Brn.-Red-Or. Filter
33 10K	1/2 W	BTS-10K		BTS-10K	Brn.-Blk.-Or. Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.	
34	.125A	130Ω	C-178	T20C54	C-2303	† Drill new mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.
35	117V AC @ .9A	670V CT @ .125A	5.0V AC @ 1.8A	A-17	P-6014	T22R05

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		
	IMPEDANCE	DC RES.		MASCO PART No.	THORDARSON PART No.	MERIT PART No.
36	8400Ω CT	100Ω	.3Ω	0-17	A-3830 †	T22S68 †

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		
	FIELD	VC IMP.		MASCO PART No.	JENSEN PART No.	INSTALLATION NOTES
37	PM	4Ω		AF-12	ST-101*	*Change output transformer to match 8Ω voice coil
38	11-3/4"	1-1/8"			P12-T	NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	MASCO PART No.	
39	Bayonet	6-8	0.15	Brown		Type 47

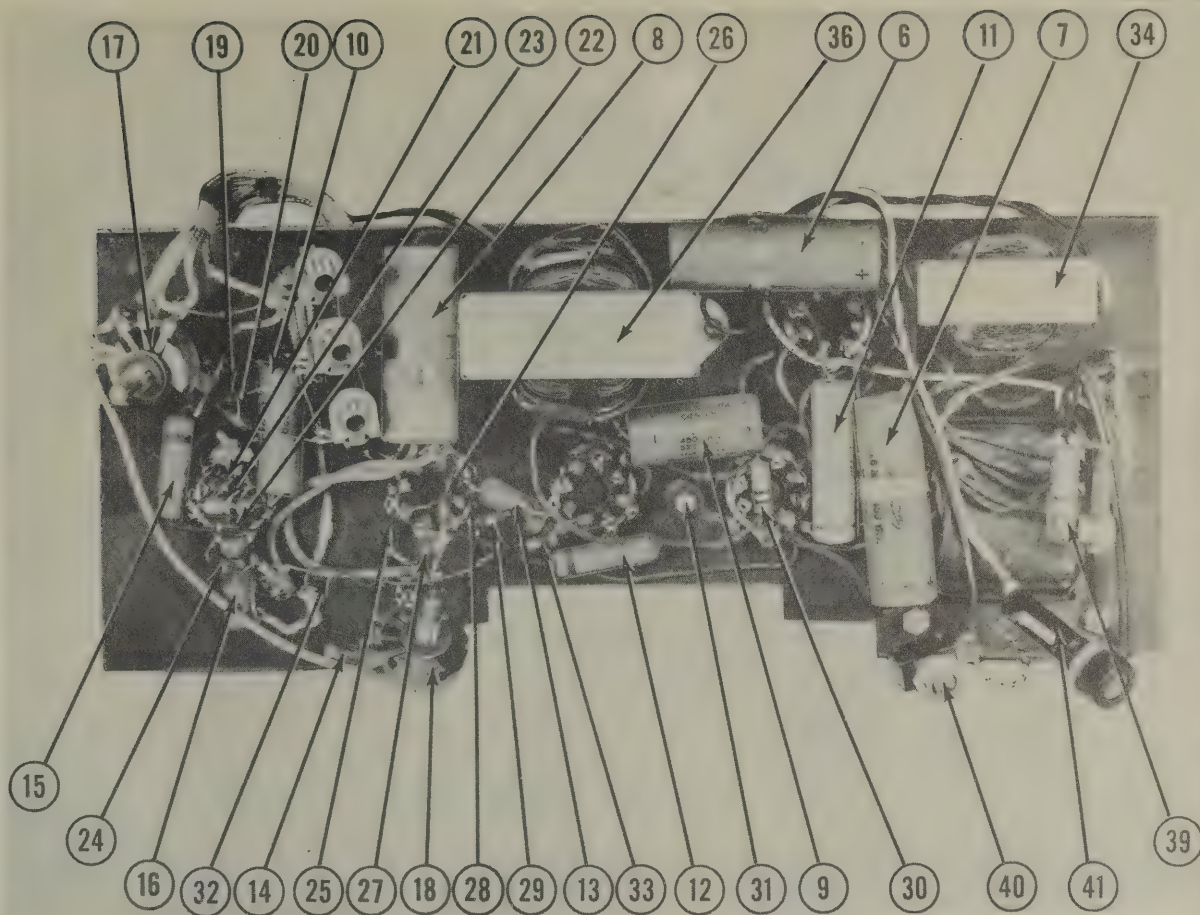
MISCELLANEOUS

ITEM No.	PART NAME	MASCO PART No.	NOTES
40	Switch		
41	Fuse	On-Off 3-5 Amperes	

DISASSEMBLY INSTRUCTIONS

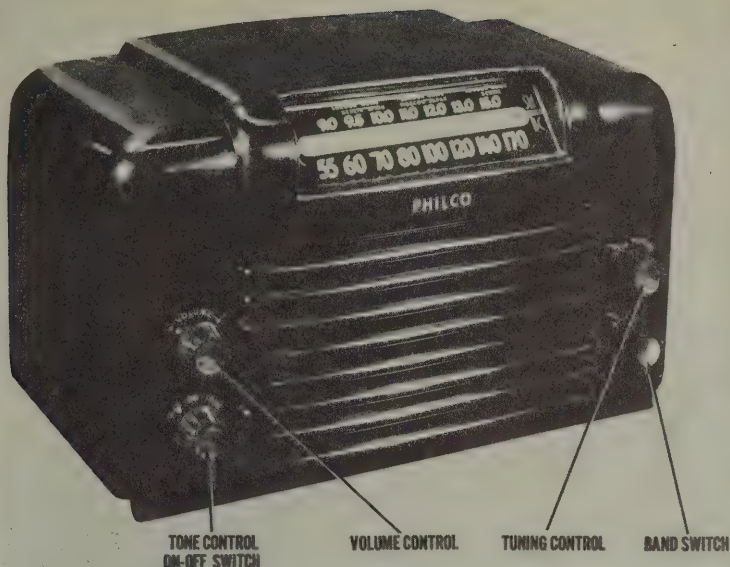
1. Remove four wood screws holding panel below control panel to cabinet. Remove from cabinet.
2. Remove two control knobs.
3. Remove six lock nuts holding controls and input jacks to control panel.
4. Remove seven wood screws holding control panel to cabinet.
5. Remove one lock nut holding dial light to control panel.
6. Unsolder two leads and remove fuse holder from control panel.
7. Remove two wood screws holding chassis in cabinet. Remove chassis from cabinet.
8. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.

CHASSIS—BOTTOM VIEW





THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 4716-19



PHILCO MODEL 48-464

TRADE NAME Philco, Model 48-464
MANUFACTURER Philco Corp., Tioga & C Sts., Philadelphia, Pa.
TYPE SET AC-DC 2 Band Superheterodyne Receiver with Loop Antenna
TUBES (SIX) Types, 14AF7 Converter, 7B7 1st IF Amp., 7B7 2nd IF Amp., 7C6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.

POWER SUPPLY 110-120 Volts AC-DC
TUNING RANGE—BROADCAST 540-1720KC

RATING .250 Amps. @ 117V AC
SHORT WAVE 9-15.5MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap. fully closed and set pointer 3-9/16" from extreme left edge of dial backplate bracket. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to front stator of tuning cap. Low side to B-.	455KC	BC (Counter clockwise)	Tuning cap. fully open.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	Loop	580KC	"	4-5/16" from extreme left edge of dial backplate brkt.	"	A5	Fashion loop of several turn of wire and radiate signal into loop of receiver. Adjust for maximum output.
3	"	1700KC	"	8-9/16" from extreme left edge of dial backplate brkt.	"	A6	Adjust for maximum output.
4	"	1500KC	"	Tune for maximum output.	"	A7	" " " "
5	"	580KC	"	"	"	A5	Rock tuning cap. and adjust for maximum output. Repeat Steps 3, 4 and 5 until no further increase in output can be obtained. Then repeat Step 3.
6	"	15MC	SW (clockwise)	8-3/8" from extreme left end of dial backplate bracket.	"	A8	Adjust for maximum output. Tune signal gen. to 14.1 MC. Signal should not be heard. If it is, retune sig. gen. to 15MC and loosen trimmer to next peak. Adjust for maximum output and recheck for image.
7	"	"	"	Tune for maximum output.	"	A9	Rock tuning cap. and adjust for maximum output.

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DATE 10/47 SET #26 FOLDER #4716-20

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

PHILCO
MODEL 48-464

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT	
1	Converter	14AF7	8AC	
2	1st IF Amp.	7B7	8V	
3	2nd IF Amp.	7B7	8V	
4	Det.-AVC-AF	7C6	8W	
5	Power Output	50A5	6AA	
6	Rectifier	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	PHILCO PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
7A	30	150	30-2573	TN129	DSB-403020-150	TA-303	FRSA150-30-30	EZ42215	Filter- Orange " - Blue " - Red
7B	20	150							Line Filter
8	.04	400	45-3500-2	TP425	MPH-4-05	TC-14	434-03	DT4S4	Rectifier Bypass
9	.04	400	45-3500-2	TP425	S-6-04	TC-14	434-03	DT4S4	Output Plate Bypass
10	.02	400	61-0108	TP423	S-4-02	TC-12	434-02	DT4S2	Tone Comp.
11	.006	400	45-3500-7	TP409	S-6-006	TC-26	434-006	DT4S2	Audio Coupling
12	.02	400	61-0108	TP423	S-4-02	TC-12	434-02	DT4S2	
13	.01	400	61-0120	TP421	S-4-01	TC-11	434-01	DT4S1	
14	.05	200	61-0122	TP426	S-4-05	TC-15	434-05	DT4S5	AVC Filter
15	.05	200	61-0122	TP426	S-4-05	TC-15	434-05	DT4S5	Screen Bypass
16	.05	400	78-2352	TP426	S-4-05	TC-15	434-05	DT4S5	Line Isolation *
17	.15	600	33-9851-2	TP417	S-6-2	TC-1	634-15	DT6P2	" "
18	.06	400	45-3500-7	TP409	S-6-006	TC-26	434-006	DT6D6	Converter Plate Decoup.
19	.01	400	61-0120	TP421	S-4-01	TC-11	434-01	DT4S1	Converter Cathode Byp.
20	.05	200	61-0122	TP426	S-4-05	TC-15	434-05	DT4S5	Output Grid Bypass
21	.220	200	60-1220-100	MP237	MO.5-32	1FM-32	1468-0002	5W5T2	RF Coupling
22	.220	200	60-1220-100	MP237	MO.5-32	1FM-32	1468-0002	5W5T2	Osc. Grid
23	.275	47	60-051537	MP225	MO.5-45	1FM-45	1468-00005	5W5Q5	Fixed Pad.
24	.275	30	30-1220-7						Osc. Feedback
25	.220	200	60-1220-100	MP237	MO.5-32	1FM-32	1468-0002	5W5T2	Fixed Pad.
26	.275	30	30-1220-7						Feedback
27	.6	60	60-950507	MP205	MO.5-55	PS-55	1468-000005	5W5V5	

*Wind same number turns as on original.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
28A	500K \pm	33-5538-11	TR48	D13-133	M-50-2	Volume Control
28B	Start	Not Req.	Not Req.	A	Not Req.	Attach to 28A per instructions
28C	Switch	Not Req.	Not Req.	Not Req.	Not Req.	Tone Control
29	500K \pm	33-5538-14	TR50			Attach to 29A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		PHILCO PART No.	IRC PART No.	
30	47K \pm	66-3473340	BTS-47K	Y1-Vi.-Or. Oscillator Grid
31	2200 Ω	66-2223340	BTS-2200	Red-Red-Red Mixer Cathode
32	10K \pm	66-3103340	BTS-10K	Br.-Blk.-Or. Oscillator Plate Load
33	2.2 Meg.	66-5223340	BTS-2.2	Meg. Red-Red-Grn. Mixer Grid
34	10K \pm	66-3103340	BTS-10K	Br.-Blk.-Or. Mixer Plate Decoupling
35	15K \pm	66-3153340	BTS-15K	Br.-Grn.-Or. IF Screen Drooping
36	2.2 Meg.	66-5223340	BTS-2.2	Meg. Red-Red-Grn. AVC Network
37	4.7 Meg.	66-5473340	BTS-4.7	Meg. Y1-Vi.-Grn. AF Grid
38	220K \pm	66-4223340	BTS-220K	Red-Red-Yl. AF Plate Load
39	470K \pm	66-4473340	BTS-470K	Y1-Vi.-Yl. Output Grid
40	130K \pm	66-1123340	BW-120	Br.-Or.-Br. Output Cathode
41	150K \pm	66-4153340	BTS-150K	Br.-Grn.-Yl. Line Isolation
42	1200 Ω	66-2123340	BTS-1200	Br.-Red-Red Filter
43	220 Ω	66-122430	BW-1-220	Red-Red-Br.

PARTS LIST AND DESCRIPTIONS (Continued)
TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.		PHILCO PART No.	STANCOR PART No.	MERIT PART No.	
44	2000Ω 3.9Ω	170Ω	1.6Ω	Part of 36-1615-1	A-3876	T22545	A-2928

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.		PHILCO PART No.	JENSEN PART No.		
45	PM	3.5Ω		36-1615-1			
46	CONE DIA. 4"x6"	VC DIA. 1/2"					CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER.

R F COILS

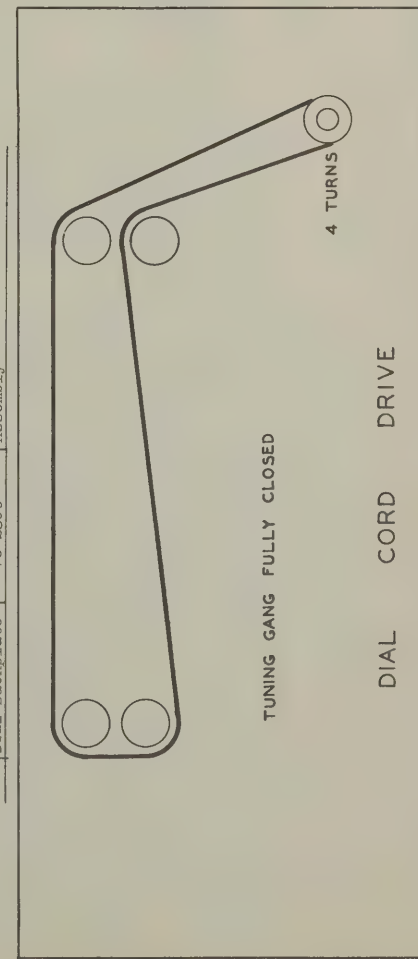
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
47	Loop Ant.		0Ω	76-2436		
48	BC Ant. Coil	1.5Ω		32-3846-1		
49	SW Ant. Coil	0Ω		32-3517-1		
50	BC Osc. Coil	5.5Ω		32-3715-1		
51	BSW Osc. Coil	.5Ω				
52	Input IF	1.2Ω	20Ω	32-3956-2		
53	Inter. IF	8Ω	22Ω	32-3957-2		
54	Output IF	50Ω		32-3955-2		

DIAL LIGHT

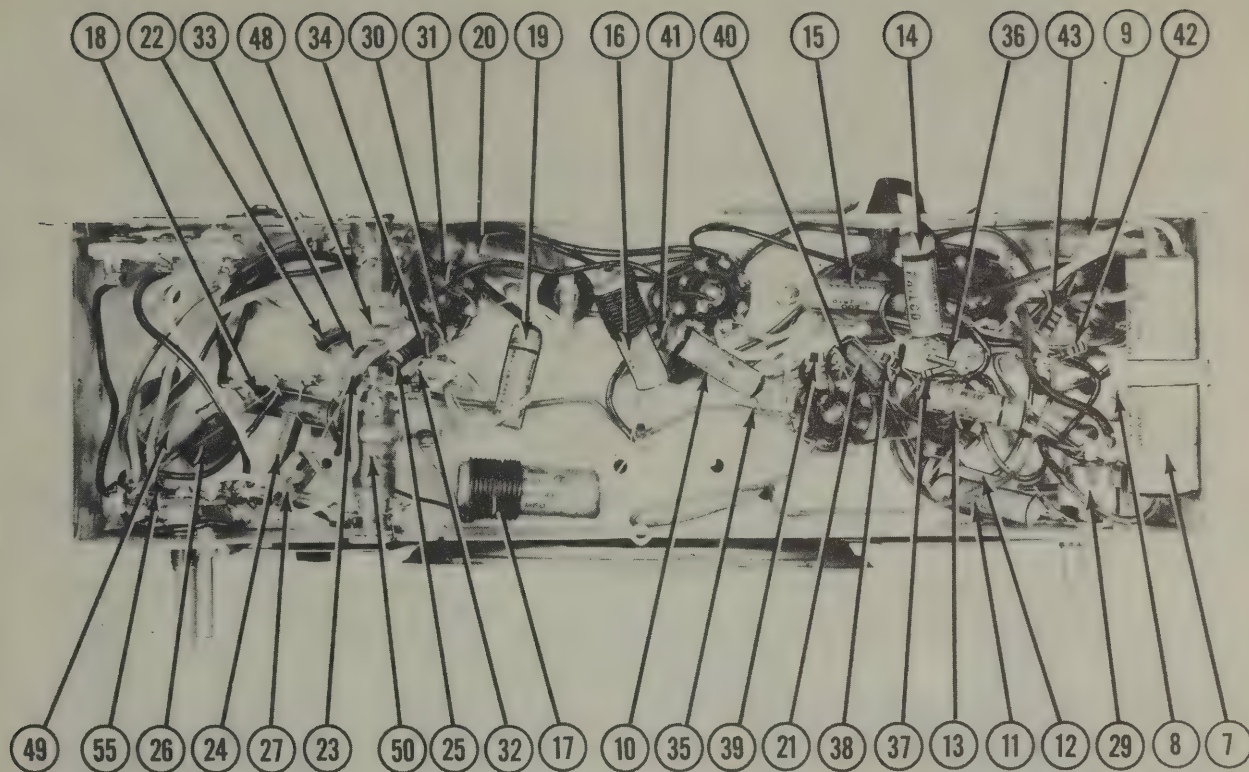
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	PHILCO PART No.	
54	Bayonet	6-8	0.15	Brown		Type 47

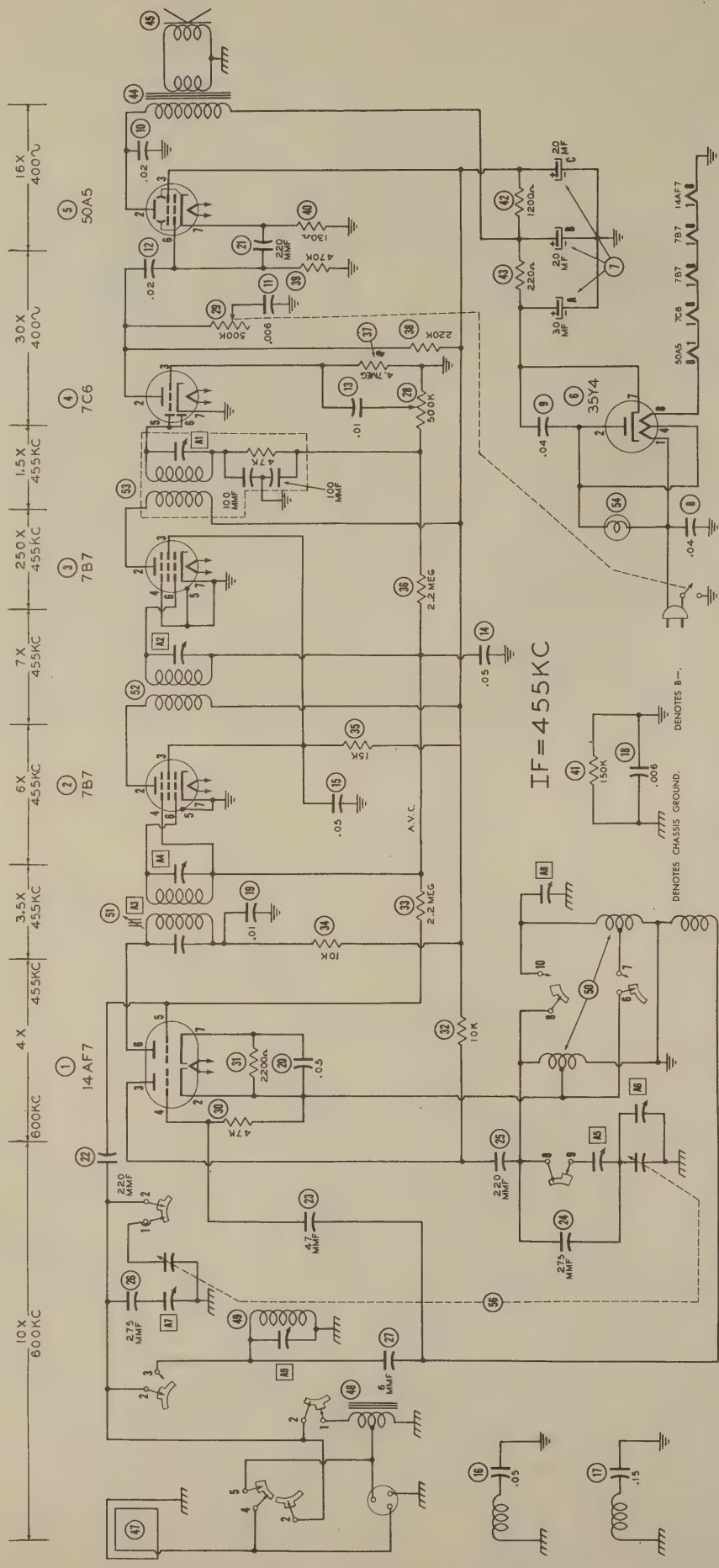
MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
55	Band Switch	42-1791	
56	2 Gang Var. Cap.	31-2715	26-483 Mmf each section
A5			BC Osc. Adj.
A8	Trimmer Strip	31-6477-2	BSW Osc. Adj.
A9			SW Ant. Adj.
	Cabinet	10618B	
	Dial Backplate	76-2390	Assembly



CHASSIS—BOTTOM VIEW





Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
1	144V7	13VAC	OV.	55VDC	-3, 1VDC	-3VDC
2	767	20VAC	66VDC	52VDC	-8VDC	OV.
3	757	27VAC	56VDC	53VDC	OV.	OV.
4	7045	34VAC	66VDC	-8VDC	OV.	-OV.
5	506S	34VAC	66VDC	102VDC	OV.	OV.
6	3574	117VAC	113VAC	56VDC	113VAC	OV.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14AF77	138	128	50KΩ	50KΩ	5 MΩ	60KΩ	2.2KΩ	0Ω
2	787	202	50KΩ	65KΩ	3 MΩ	3 MΩ	3 MΩ	0V	132
3	787	288	50KΩ	65KΩ	0V	0V	3 MΩ	0V	250
4	708	322	270KΩ	5 MΩ	0V	540KΩ	540KΩ	0V	258
5	50A5	328	50KΩ	50KΩ	1MΩ	0V	470KΩ	120Ω	858
6	3574	1158	1128	50KΩ	1128	1MΩ	50KΩ	570KΩ	858

STAKEN WITH VACUUM TUBE VOLTMETER.

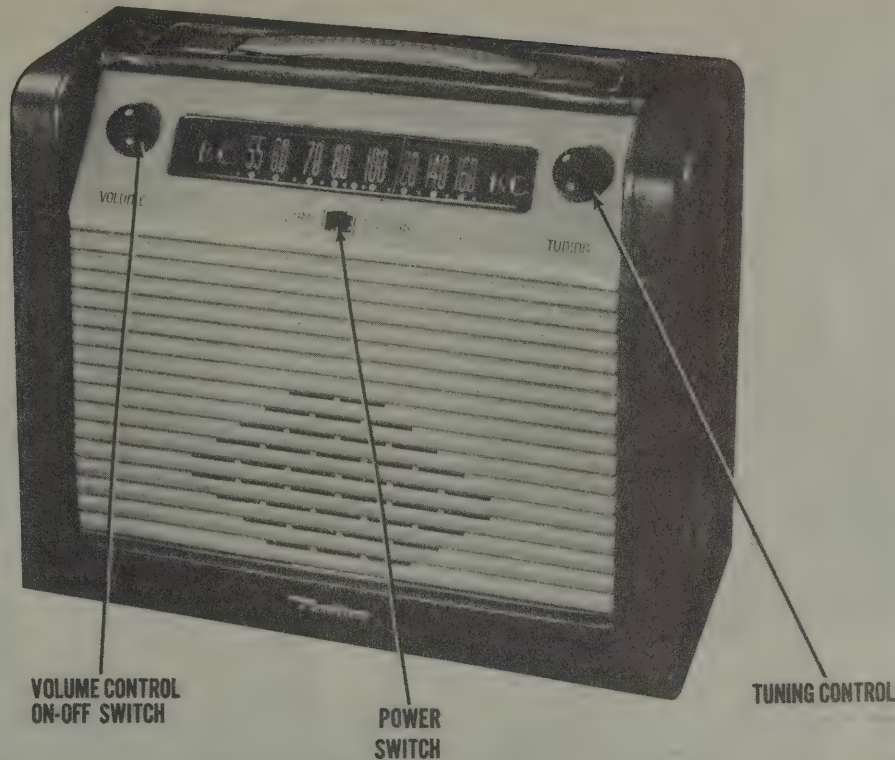
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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4716-20

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PURITAN MODEL 509
BATTERY OPERATED



PURITAN MODEL 509
BATTERY OPERATED

PURITAN MODEL 509

TRADE NAME	Puritan, Model 509
SUPPLIER	The Pure Oil Co., 35 Wacker Dr., Chicago, Ill.
TYPE SET	Three Power Portable Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 1A7GT Converter, 1N5GT 1st IF Amp., 1N5GT 2nd IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output, 117Z6GT Rectifier.
POWER SUPPLY RATING	105-125 Volts AC-DC or 9 Volt "A" Supply and 90 Volt "B" Supply .210 Amp. @ 117V AC or 51MA @ 9V DC and 11MA @ 90V DC
TUNING RANGE-BROADCAST	532-1700KC

ALIGNMENT INSTRUCTIONS-READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with the low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1. .01 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200MMF to reduce hum modulation.
2	Loop	1700KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3	"	1550KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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Indianapolis Indiana

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DATE 10/47 SET #26 FOLDER #4716-21

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

PURITAN MODEL 509
BATTERY OPERATED

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PURITAN PART No.	STANDARD REPLACEMENT		
1	Converter	1A7GT	1A7GT	7Z	
2	1st IF Amp.	1N5GT	1N5GT	5Y	
3	2nd IF Amp.	1N5GT	1N5GT	5Y	
4	Det.-AVC-AF	1H5GT	1H5GT	5Z	
5	Power Output	3A5GT	3A5GT	7AP	
6	Rectifier	117Z6GT	117Z6GT	7A	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PURITAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	CAP. 40	FP409	DY-419	EL-443	AF886DA	UP555150 ▲ Filter
B	40					
C	40					
D	150					
8	25					
9	1	TP418	M-25-25		PRSA25-25	BR252A Line Filter
10	2	TP419	MPH-6-1	TA-25	684-1	DT8P1 RF Bypass Pwr. Supply
11	0.05	TP426	S-4-2	TC-2	434-2	DT4P2 Fil. Bypass
12	0.05	TP426	S-4-05	TC-15	434-05	DT4S5 " "
13	0.05	TP426	S-4-05	TC-15	434-05	DT4S5 " "
14	2	TP419	S-4-2	TC-2	434-2	DT4P2 Line Isolation
15	0.002	TP405	S-6-002	TC-22	684-002	DT6D2 Output Plate Bypass
16	0.002	TP405	S-6-002	TC-22	684-002	DT6D2 Audio Coupling
17	0.01	TP410	S-6-01	TC-11	684-01	DT6S1 " "
18	0.05	TP426	S-4-05	TC-15	434-05	DT4S5 AVC Filter
19	0.05	TP426	S-4-05	TC-15	434-05	DT4S5 " "
20	0.05	TP426	S-4-05	TC-15	434-05	DT4S5 " "
21	0.01	TP410	S-6-01	TC-11	684-01	DT6S1 Conv. Screen Bypass
22	100	M235	M0.5-31	1FM-31	1468-0001	5W5T1 AF Plate Bypass
23	100	M235	M0.5-31	1FM-31	1468-0001	5W5T1 IF Coupling
24	100	M235	M0.5-31	1FM-31	1468-0001	5W5T1 Osc. Grid

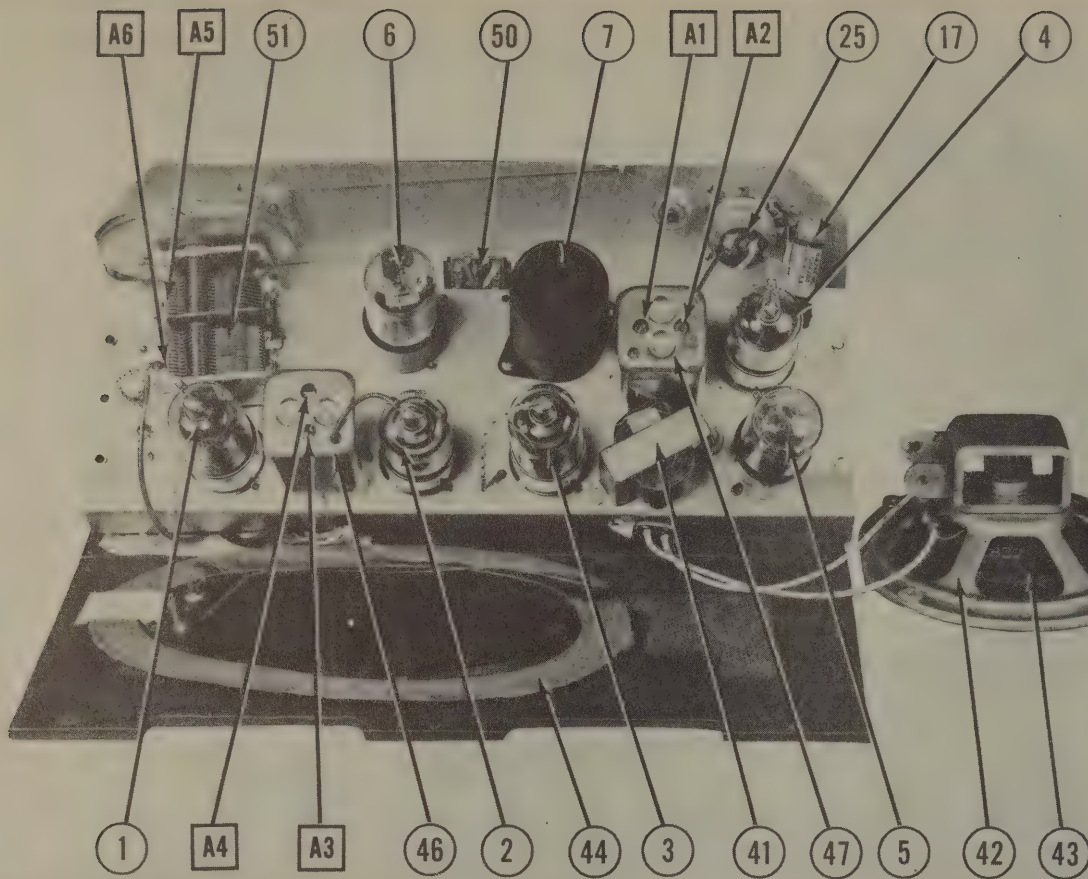
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PURITAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
25A	500KΩ		M401	D13-133	AM-60-Z	Volume Control
B	500KΩ		Not Req.	E	KSS-3	Attach to 25A per instructions
C	Switch		M26	41	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		PURITAN PART No.	MALLORY PART No.	IRC PART No.	
26	220KΩ			BTS-220K	Red-Red-VI. Oscillator Grid
27	4KΩ			BTS-47K	VI.-VI.-Or. Converter Screen
28	2.2 Meg.			BTS-2.2 Meg.	Red-Red-Grn. AVC Network
29	2.2 Meg.			BTS-2.2 Meg.	Red-Red-Grn. " "
30	3.5 Meg.			BTS-3.5 Meg.	Or.-Grn.-Grn. AVC Network
31	4.7 Meg.			BTS-4.7 Meg.	VI.-VI.-Grn. AF Grid-See Note 1
32	470KΩ			BTS-470K	VI.-VI.-VI. AF Plate Load
33	1.2 Meg.			BTS-1.2 Meg.	Br.-Red-Grn. Output Grid
34	820Ω			BTS-820	Gray-Red-Br. Filament String
35	820Ω			BTS-820	Gray-Red-Br. " "
36	2200Ω			BTA-2200	Red-Red-Red. Filter
37	15Ω			BW-1-15	Surge Limiter
38A	1200Ω			AB-1250	Filament String
B	1350Ω			AB-1250	" "
39	8200Ω			BTS-8200	Gray-Red-Red IF Plate Load-See Note 2
40	16KΩ			BTS-15K	Br.-Blue-Or. IF Grid - See Note 3

Note 1 - Some models use 3.9 Meg. in this application.
Note 2 - Some models use 22KΩ in this application.
Note 3 - Some models use 47KΩ in this application.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	PURITAN PART No.	THORDARN PART No.	
	PRI. SEC.	PRI. SEC.			
41	8600Ω	3.5Ω	650Ω	.8Ω	
			TA7-1	A-3879	A-2932

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	WC IMP.	PURITAN PART No.	JENSEN PART No.	
42	PM	3.5Ω	EH6-1	ST-105	
				Mod. PS-X	
43	CONE DIA.	WC DIA.	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		
	5"	1 1/2"			

R F COILS

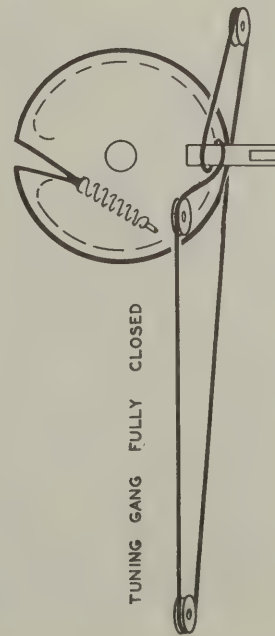
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	PURITAN PART No.	MEISSNER PART No.
44	Loop Ant.	1Ω	1.2Ω		
45	Osc. Coil	11Ω	4.5Ω	TP2-12	14-1040
46	Input IF	14Ω	16Ω	TP2-13	16-6658
47	Output IF				16-6670

BATTERIES

ITEM No.	VOLTAGE	PURITAN PART No.	EVEREADY		INSTALLATION NOTES
			"A"	"B"	
48	9V "A"		2 #746		2 Used in series
49	90V "B"			2 #482	

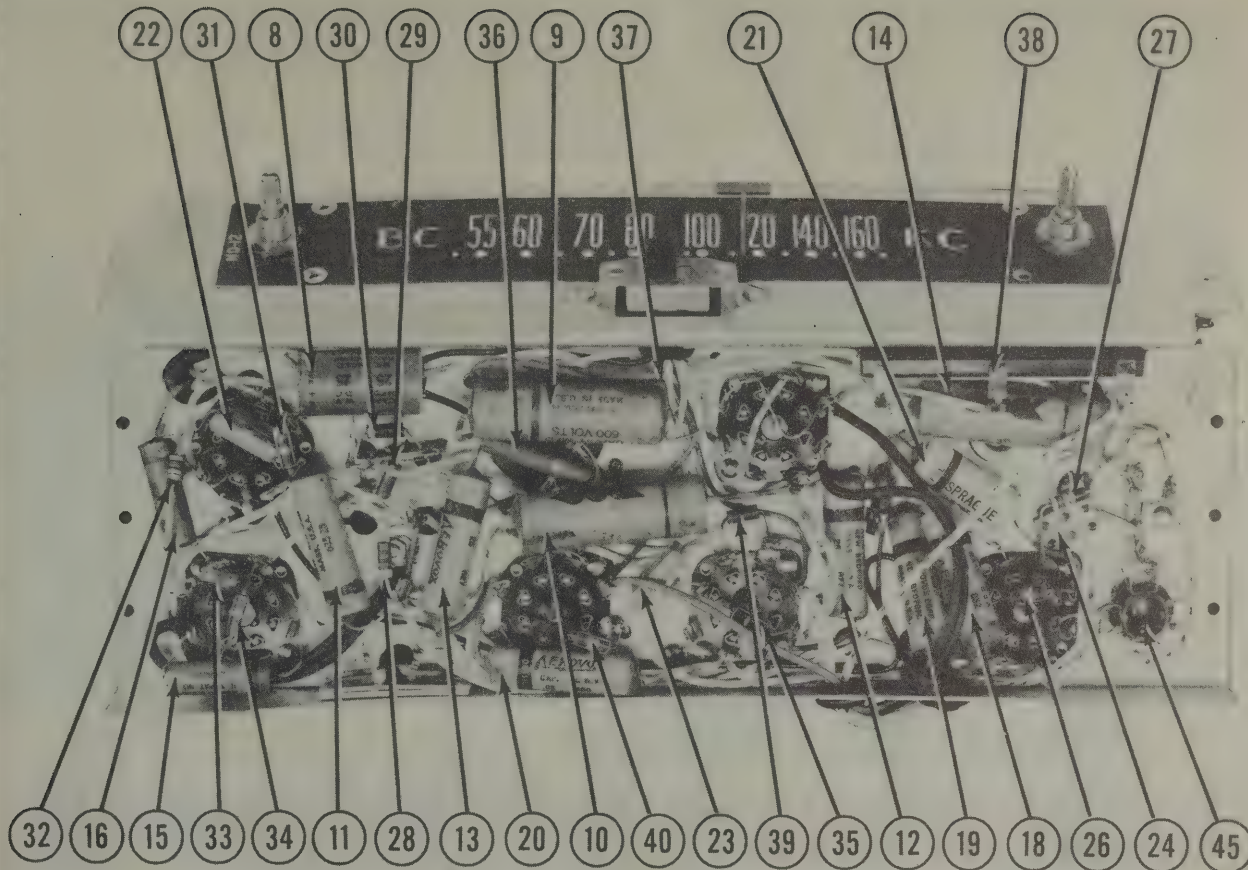
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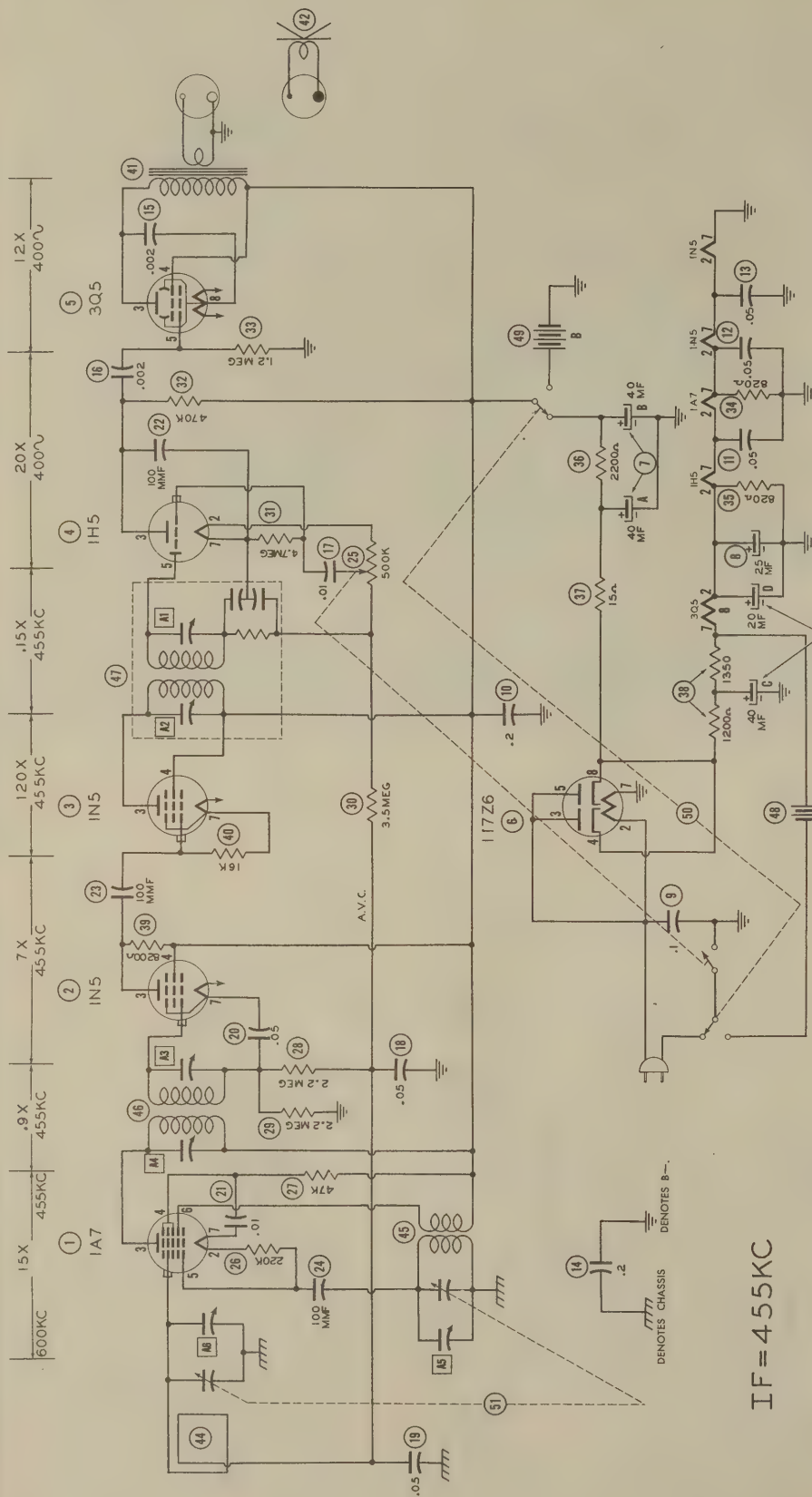
ITEM No.	PART NAME	PURITAN PART No.	NOTES
50	Switch		Power Change
51	2 Gauge Var. Cap	CV-6	23-440 MUF, 20-186 MUF



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cup
1	1A7	OV.	4.2VDC	68VDC	53VDC	-3.7VDC	68VDC	2.8VDC	.2VDC	.2VDC
2	IN5	OV.	2.8VDC	90VDC	90VDC	OV.	OV.	1.4VDC	.1VDC	.1VDC
3	IN5	OV.	1.4VDC	98VDC	98VDC	OV.	OV.	OV.	OV.	OV.
4	IN5	OV.	5.6VDC	75VDC	75VDC	OV.	1.4VDC	.2VDC	4.3VDC	.2VDC
5	3Q5	OV.	5.6VDC	65VDC	65VDC	OV.	OV.	8.3VDC	7VDC	-
6	117Z6	126VDC	117VAC	117VAC	130VDC	117VAC	OV.	OV.	130VDC	-

STAKEN WITH VACUUM TUBE VOLTMETER.

VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cup
1	1A7	INF.	INF.	4.7KΩ	50KΩ	220KΩ	4.7KΩ	2.5 MΩ	2.5 MΩ	2.5 MΩ
2	IN5	INF.	INF.	1KΩ	4.7KΩ	INF.	0Ω	2 MΩ	2 MΩ	2 MΩ
3	IN5	INF.	INF.	4.7KΩ	4.7KΩ	INF.	15KΩ	0Ω	15KΩ	15KΩ
4	IN5	INF.	INF.	4.7KΩ	4.7KΩ	INF.	570KΩ	4.7 MΩ	4.7 MΩ	4.7 MΩ
5	3Q5	INF.	INF.	5KΩ	220KΩ	2.5KΩ	0Ω	0Ω	2.5KΩ	-
6	117Z6	2.5KΩ	250Ω	250Ω	2.5KΩ	220Ω	0Ω	0Ω	2.5KΩ	-

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

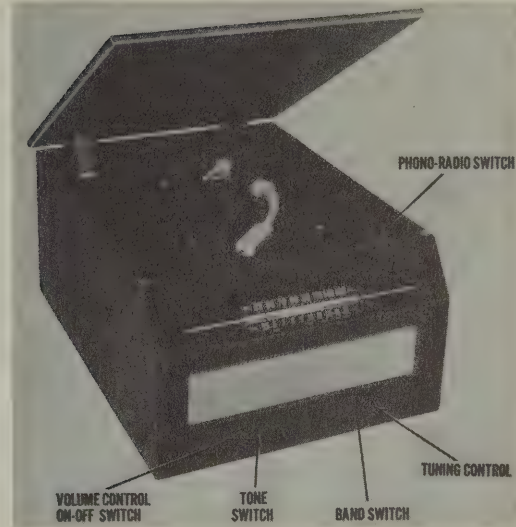
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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4716-21

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made operative by shorting high side of volume control to low side.

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.



TRADE NAME		Radionic, Models Y62W, Y728					
MANUFACTURER		Radionic Equip. Co., 170 Nassau St., N.Y. 7, N.Y.					
TYPE SET		AC-DC 2 Band Superheterodyne - Self Contained Loop Antenna					
TUBES (SIX)		Types, 7B7 RF Amp., 14Q7 Converter, 7B7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.					
POWER SUPPLY		105-125 Volts AC-DC		RATING		.260 Amps. @ 117V AC	
TUNING RANGE—BROADCAST		535-1700KC		SHORT WAVE		5.3-18MC	
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
To set pointer turn variable fully closed and set pointer to reference mark at bottom of left end of dial. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and chassis. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stat- tor of front sec- tion of variable. Low side to chassis.	455KC	BC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output If isolation transformer is not used reduce dummy ant. to .001 MFD. to re- duce hum modulation.
.1 MFD.	"	"	"	Variable fully closed	"	A5	Adjust for minimum output
200MMFD	High side to ext. ant. lead. Low side to chassis.	1500KC	"	1500KC	"	A6	Adjust for maximum output
200MMFD	"	"	"	Tune for max- imum output.	"	A7	" " " "
200MMFD	"	600KC	"	"	"	A8	Rock variable and adjust for maximum output. Re- peat last three steps un- til no further increase can be obtained.
400Ω	"	16MC	SW	16MC	"	A9	Adjust for maximum output
400Ω	"	16MC	"	Tune for max- imum output.	"	A10	Rock variable and adjust for maximum output.

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DATE 10/47 SET #26 FOLDER #4716-22

RADIONIC MODELS
Y62W, Y728

RADIONIC MODELS
Y62W, Y728

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

RADIONIC
MODELS YG2M, Y72B

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		RADIONIC PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	7B7	7B7	8V	
2	Converter	14Q7	14Q7	8AL	
3	IF Amp.	7B7	7B7	8V	
4	Det.-AVC-AF	14B6	14B6	8M	
5	Power Output	50A5	50A5	6AA	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		RADIONIC PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	CAP. 30	25N513	DSB-403020-	TA-303	FRS150-40-	E2443150 Filter - Red
7B	30	TC47	S-4-02	TC-12	484-02	" - Blue
7C	150	TP423	S-6-03	TC-13	484-03	" - Yellow
8	.02	TP424	S-4-02	TC-12	484-02	Line Filter
9	.03	TP423	S-4-02	TC-12	484-02	Tone Compensation
10	.02	TP423	S-4-02	TC-12	484-02	Output Plate Bypass
11	.02	TP423	S-4-02	TC-12	484-02	Audio Coupling
12	.25	TP430	S-4-25	TC-2	484-25	RF Bypass Pwr. Supp.
13	.1	TP428	S-4-1	TC-1	484-1	AVC Filter
14	.001	TP404	S-6-001	TC-21	684-001	RF Coupling
15	.0001	TP401	VO-5-31	TC-31	1466-0001	Osc. Grid Capacitor
16	6900	TC469	VM-3-27	1FM-27	1467-006	Audio Coupling
17	4000	TC463	VM-3-24	1FM-24	1467-004	Fixed Pad
18	6000	TC469	VM-3-27	1FM-27	1467-006	Ant. Isolation

CONTROLS

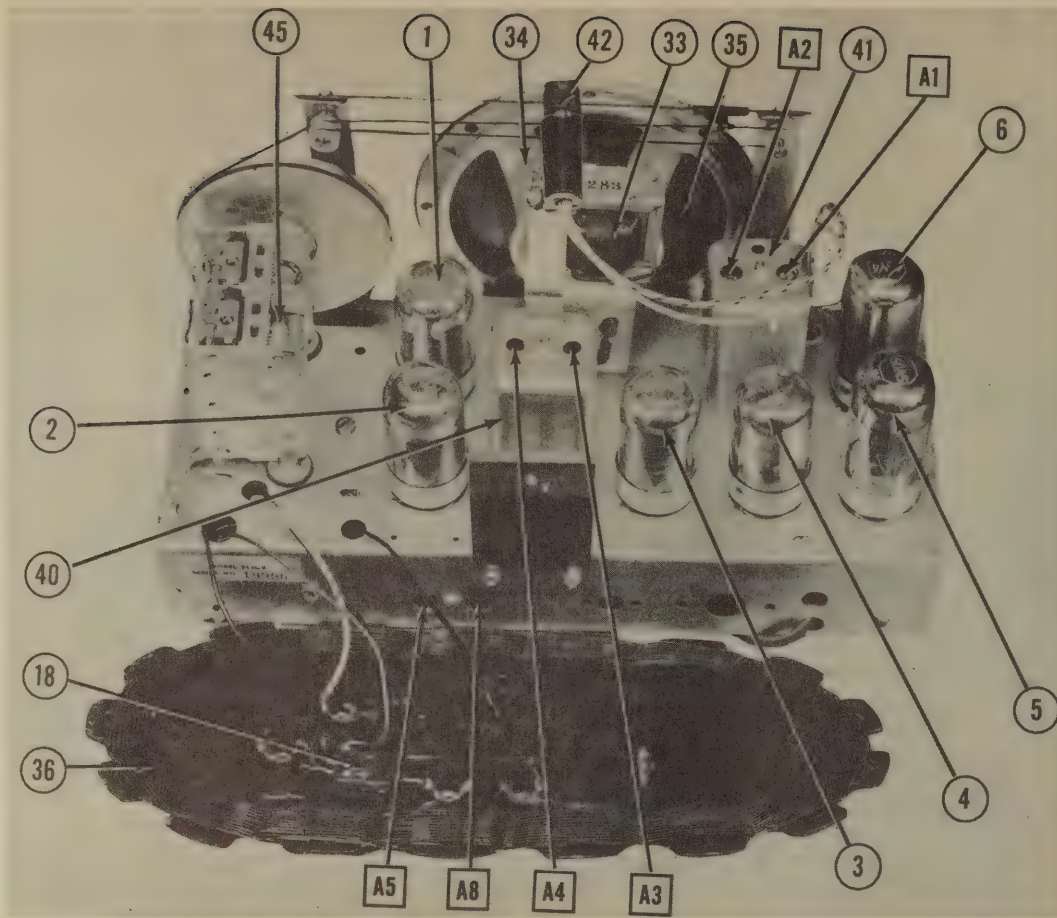
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		RESISTANCE	WATTS	RADIONIC PART No.	MALLORY PART No.	
19A	500K	1		MR48	D13-133	Volume Control
19B	Shaft			Not Req.	A	Attach to 19A per instructions
19C	Switch			ME5	SA-A	"

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		RESISTANCE	WATTS	RADIONIC PART No.	
20	3300			BTS-3300	Or.-Or.-Red RF Plate Load
21	6800			BTS-6800	Blue-Gray-Red Peaking Coil Shunt
22	470K			BTS-470K	Y1.-Vi.-Y1. Converter Grid
23	3.3 Meg.			BTS-3.3 Meg.	Or.-Or.-Gm. AVC Network
24	22K			BTS-22K	Red-Red-Or. Oscillator Grid
25	120K			BM-2-120	Br.-Red-Br. Parasitic Suppressor
26	1 Meg.			BTS-1 Meg.	Br.-Blk.-Gm. AVC Network
27	15 Meg.			BTS-15 Meg.	Br.-Gm.-Blue AF Grid
28	470K			BTS-470K	Y1.-Vi.-Y1. AF Plate Load
29	470K			BTS-470K	Y1.-Vi.-Y1. Output Grid
30	150K			BM-2-150	Br.-Gm.-Br. Output Cathode
31	390K			ETA-390	Or.-White-Br. Filter
32	100K			BM-1-100	Br.-Blk.-Br. Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.		RADIONIC PART No.	STANCOR PART No.	MERIT PART No.	
33	2000	3.1	220		A-3876*	T22845*	*Bend mounting tabs down, file out slots and mount on original bracket.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		RADIONIC PART No.	JENSEN PART No. MERIT PART No.	
34	FIELD PM VC IMP. 3.1Ω		ST-107 P5-V	
35	CONC DIA. 4-3/4" VC DIA. 1/2"			NOT READILY REPLACABLE—USE COMPLETE SPEAKER UNIT.

R F COILS

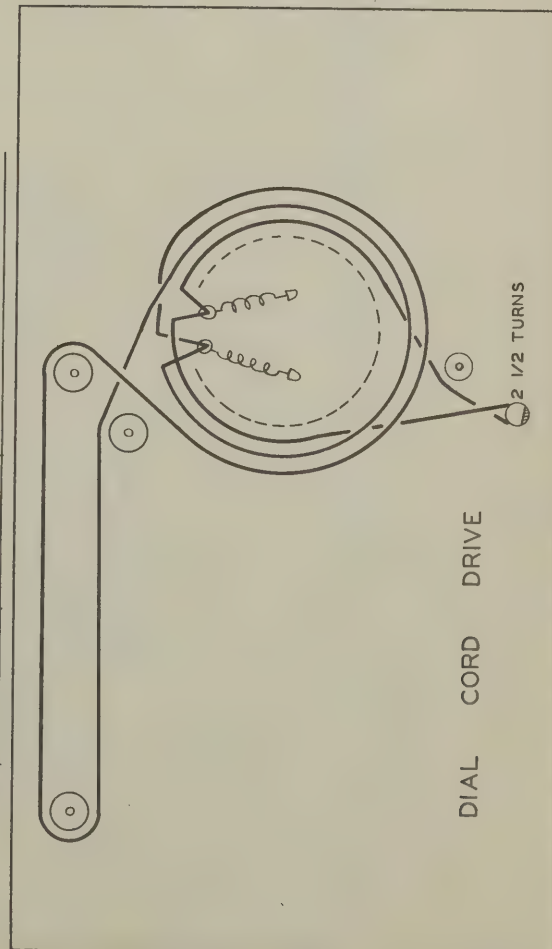
ITEM No.	USE	DC RES.	REPLACEMENT DATA			INSTALLATION NOTES
			PRI.	SEC.	RADIONIC PART No.	
36	Loop Ant. Coil	.5Ω	.2Ω	.8Ω		
37	SW Ant. Coil	.2Ω		0Ω	14-1044	38A & 38B wound on same form
38	EC Osc. Coil		7.5Ω	.5Ω	L-13311A-2	
39	SM Osc. Coil		.5Ω	.5Ω	Z-13309A-1	39A & 39B wound on same form
40	Wave Trap		31Ω	31Ω	Z-13302	
41	Peaking Coil		1Ω	25Ω	16-6658	
42	Input IF	25Ω			Z-13903	
43	Output IF	13Ω				

DIAL LIGHT

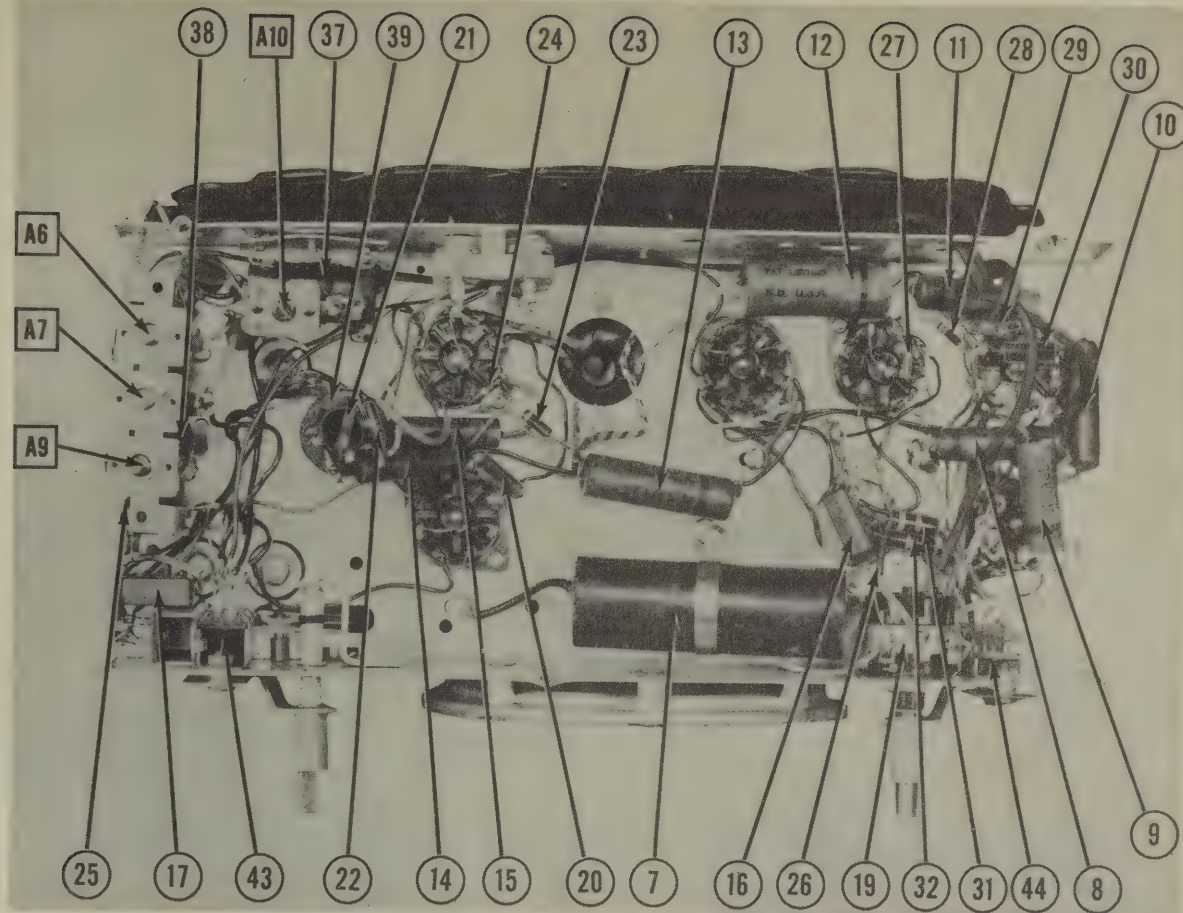
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					RADIONIC PART No.	MEISSNER PART No.	
42	Bayonet	6-8	0.15	Brown			Type 47

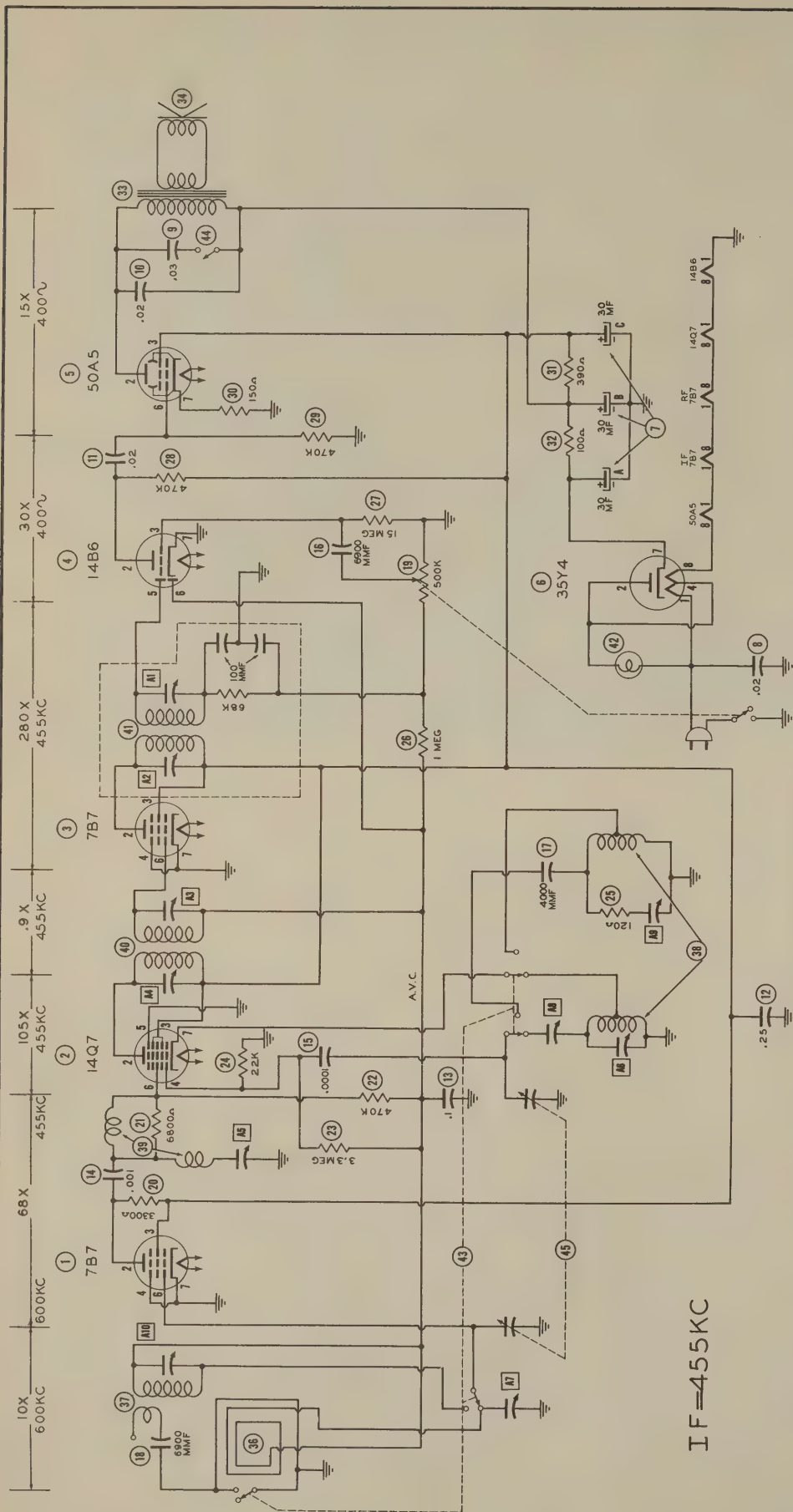
MISCELLANEOUS

ITEM No.	PART NAME	RADIONIC PART No.	NOTES
43	Band Switch		
44	Tone Switch		
45	2 Gang Var.-Cap.		(14-470 MMF, 14-470 MMF)



CHASSIS—BOTTOM VIEW





VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	32VAC	65VDC	93VDC	OV.	OV.	-7VDC	OV.	25VAC
2	14Z7	13VAC	98VDC	93VDC	-4.2VDC \pm	OV.	-4VDC	OV.	25VAC
3	7B7	37.5VAC	99VDC	93VDC	7B7	93VDC	-7VDC	OV.	32VAC
4	14B6	OV.	62VDC	-55VDC	OV.	-55VDC	-7VDC	OV.	13VAC
5	50A5	37.5VAC	100VDC	93VDC	OV.	OV.	5.7VDC	86VAC	OV.
6	35V4	117VAC	112VAC	OV.	112VAC	93VDC	106VDC	77VDC	86VAC

RESISTANCE READING

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	290	83K3	80K3	02	02	925K3	02	2302
2	1447	123	80K3	80K3	22K3	02	1.4 M Ω	5 Ω	2302
3	352	80K3	80K3	80K3	02	02	925K3	02	2902
4	1486	02	500K3	15 M Ω	02	450K3	925K3	02	122
5	5045	352	80K3	80K3	02	INF.	450K3	1302	802
6	3574	1058	1058	INF.	1058	80K3	80K3	80K3	802

TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

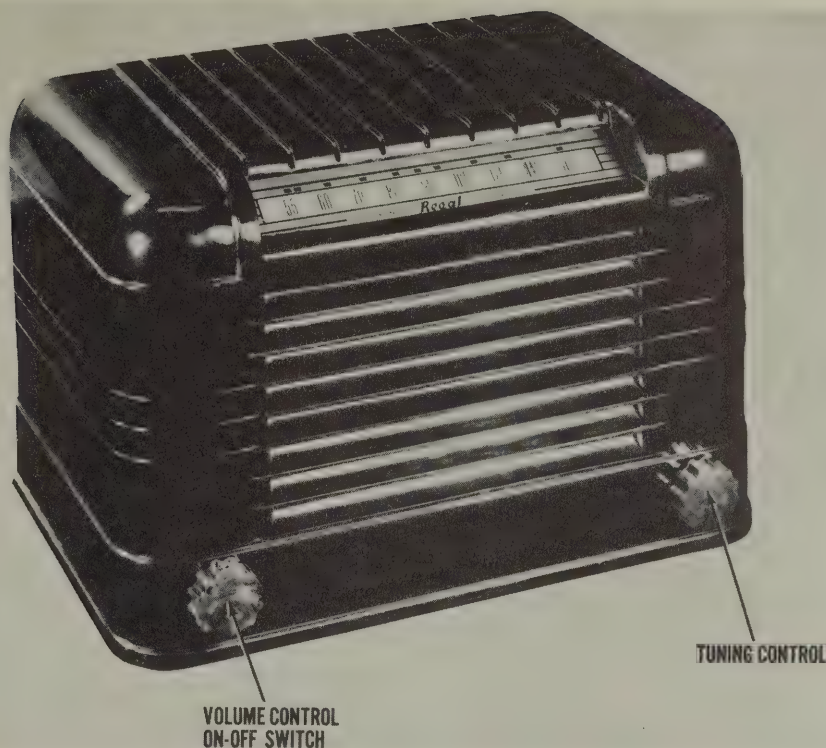
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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

4716-22

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Voltage control at maximum, no signal applied for voltage measurements.



REGAL MODEL 205

TRADE NAME Regal, Model 205 MANUFACTURER Regal Electronics Corp., 20 W. 20th St., New York, N.Y. TYPE SET AC-DC Superheterodyne with Loop Antenna TUBES (FIVE) Types, 12SA7GT Converter, 12SK7 IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.						
POWER SUPPLY 110-120 Volts AC-DC TUNING RANGE—BROADCAST 540-1650KC RATING .260 Amps. @ 117V AC						
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to stator of front section of tuning capacitor. Low side to chassis.	455KC	Tuning capacitor fully open	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3	"	1400KC	Tune for maximum output.	"	A6	Tune for maximum output.

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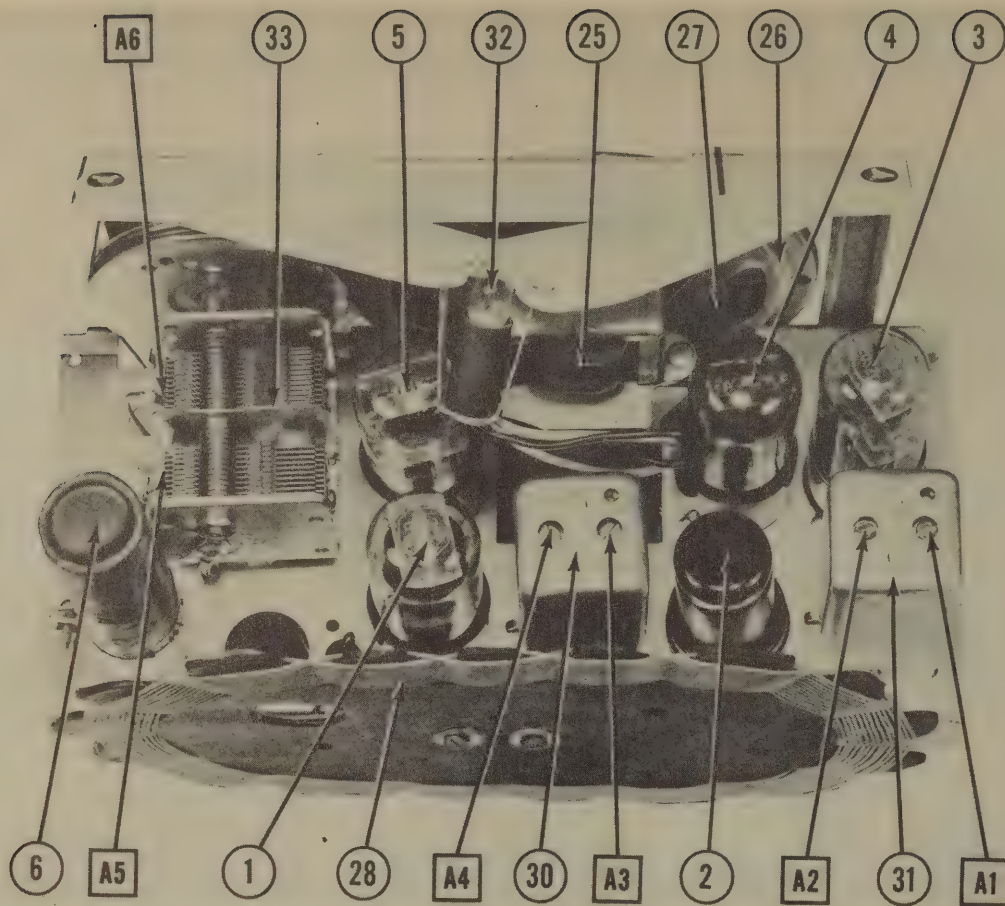
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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

REGAL
MODEL 205

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	USE	REPLACEMENT DATA			RMA BASE TYPE	INSTALLATION NOTES
		REGAL PART No.	STANDARD REPLACEMENT			
1	Converter	128A7GT	128A7GT		8AD	
2	1F Amp.	128K7	128K7		8N	
3	Det.-AVC-AF	128Q7GT	128Q7GT		8Q	
4	Power Output	50L6GT	50L6GT		7AC	
5	Rectifier	35Z5GT	35Z5GT		6AD	

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES
		REGAL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
6A	50	60-101	2N621	DSB-2X50-150	TA-505	PRSA150-50	EZ5515
B	150						
7	.05		TP426	MPH-4-05	TC-15	484-05	DT485
8	.01		TP421	S-4-01	TC-11	484-01	DT481
9	.01		TP421	S-4-01	TC-11	484-01	DT481
10	.005		TP408	S-6-005	TC-25	684-005	DT6D5
11	.05		TP426	S-4-05	TC-15	484-05	DT485
12	.05		MC237	MO-5-32	LFM-32	1468-0002	5M5T2
13	200		MC237	MO-5-32	LFM-32	1468-0002	5M5T2
14	200		MC237	MO-5-32	LFM-32	1468-0002	5M5T2
15	30		MC223	MO-5-43	MS-43	1468-0004	5M5S3

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		REGAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	500K $\frac{1}{2}$	20-101	MR48	D13-133	M-60-Z	Volume Control
B	Shaft	Not Req.	Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch		M26	41	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		REGAL PART No.	IRC PART No.		
17	25K Ω		BTS-22K		Red-Grn.-Or. Oscillator Grid
18	2.2 Meg.		BTS-2.2 Meg.		Red-Red-Grn. AVC Network
19	10 Meg.		BTS-10 Meg.		Br.-Blk.-Blue AF Grid
20	250K Ω		BTS-220K		Red-Grn.-Yl. AF Plate Load
21	500K Ω		BTS-470K		Grn.-Blk.-Yl. Output Grid
22	150 Ω		BW-1-150		Br.-Grn.-Br. Output Cathode
23	1000 Ω		BT-2-1000		Br.-Blk.-Red Filter
24	15 Ω		BW-1-15		Br.-Grn.-Blk. Rectifier Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		REGAL PART No.	STANCOR PART No.	THORDARN PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
25	3200 Ω	2.6 Ω	230 Ω	.6 Ω	Part of 110-101	A-3876	T22S46	A-2928	

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		REGAL PART No.	JENSEN PART No.	
26	FIELD PM 4-3/4"	110-101	ST-105 100. P5-X	
27	VC IMP. 2.8Ω CONE DIA. VC DIA. 1/2"			NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

R F COILS

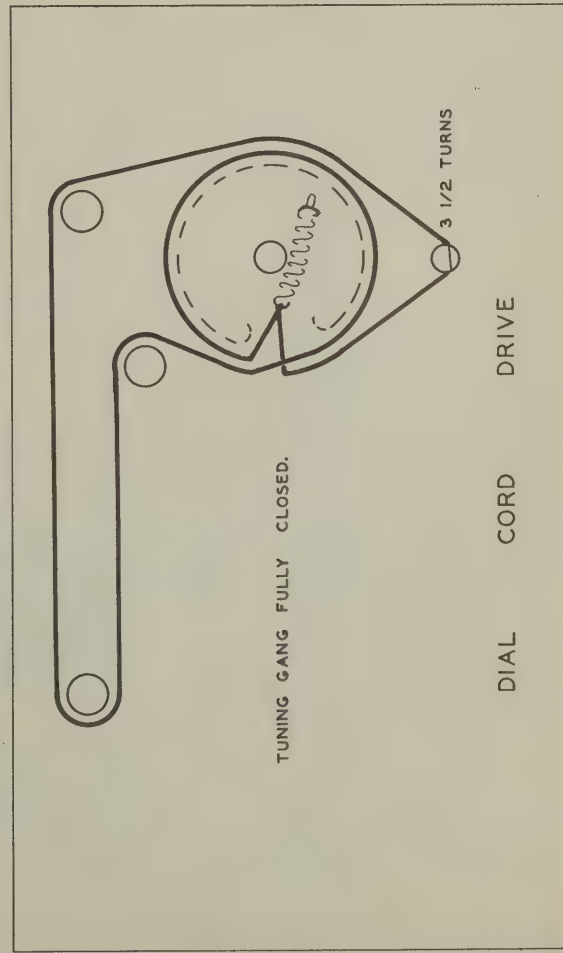
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	REGAL PART No.	MEISSNER PART No.
28	Loop Ant.	1.2Ω		30-128	
29	Sec. Coil	6.5Ω		30-101	14-1040
30	Input IF	15Ω	15Ω	30-104	16-8658
31	Output IF	15Ω	15Ω	30-105	16-8660

DIAL LIGHT

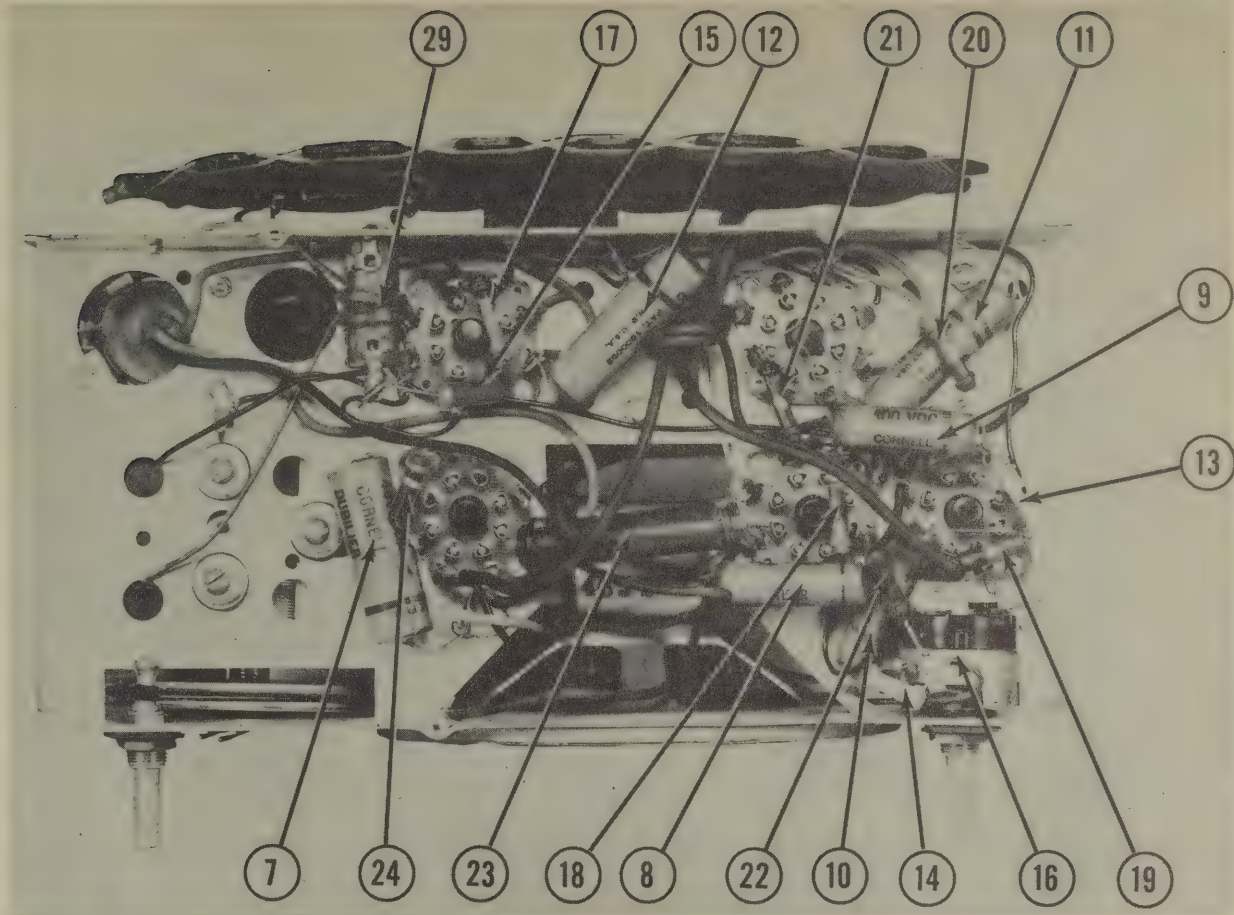
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	REGAL PART No.	
32	Bayonet	6-8	0.15	Brown		Type 47

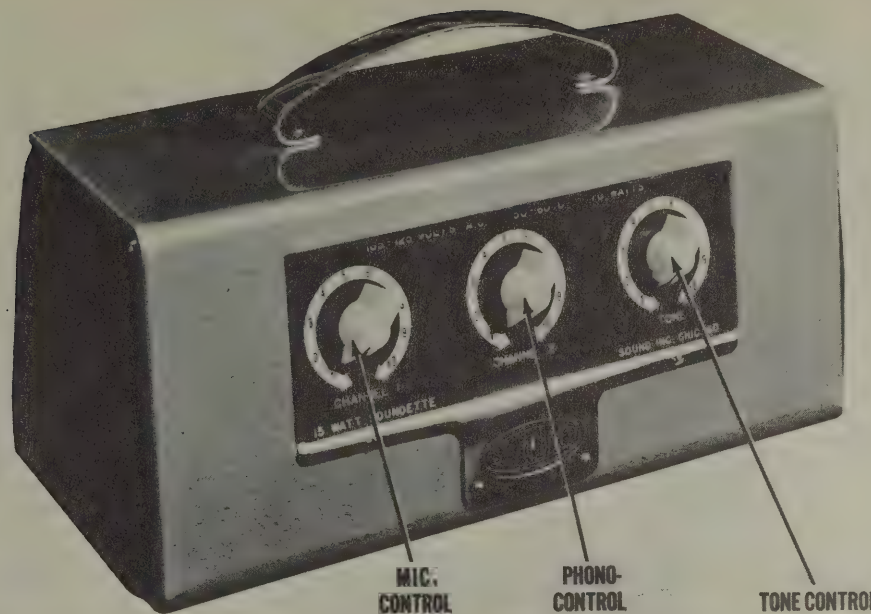
MISCELLANEOUS

ITEM No.	PART NAME	REGAL PART No.	NOTES
33	2 Gang Var. Cap	40-101	25-472MUF, 43-234 MUF



CHASSIS—BOTTOM VIEW





SOUND INC. MODEL MB7E8

TRADE NAME	Sound, Inc., Model MB7E8
MANUFACTURER	Sound, Inc., 221 E. Cullerton St., Chicago 16, Ill.
TYPE SET	AC Operated 2 Channel Amplifier
TUBES (FIVE)	Types, 6SQ7 AF Amp., 6SL7GT AF Amp.-Phase Inverter, (2) 6V6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	.500 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SQ7	0V.	-.1VDC	.9VDC	.9VDC	.9VDC	115VDC	3VAC	3VAC
2	6SL7GT	0V.	245VDC	3.1VDC	0V.	92VDC	1.2VDC	3VAC	3VAC
3	6V6GT	0V.	3VAC	380VDC	280VDC	0V.	1.4VAC	3VAC	19VDC
4	6V6GT	0V.	3VAC	380VDC	280VDC	0V.	245VDC	3VAC	19VDC
5	6X5GT	0V.	400VDC	325VAC	0V.	325VAC	0V.	400VDC	400VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SQ7	0Ω	1 MEG.	1.5KΩ	1.5KΩ	1.5KΩ	325KΩ	.1Ω	.1Ω
2	6SL7GT	650KΩ	100KΩ	2.7KΩ	650KΩ	325KΩ	1.5KΩ	.1Ω	.1Ω
3	6V6GT	INF.	.1Ω	40KΩ	55KΩ	1.5KΩ	2.3Ω	.1Ω	340Ω
4	6V6GT	INF.	.1Ω	40KΩ	55KΩ	1.7KΩ	100KΩ	.1Ω	340Ω
5	6X5GT	0Ω	40KΩ	180Ω	INF.	170Ω	INF.	40KΩ	40KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

SOUND INC.
MODEL NE7B3

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SOUND INC. PART No.	STANDARD REPLACEMENT		
1	AF Amp. Phase	6S47	6S47	8Q	
2	AF Amp. Phase	6SL7GT	6SL7GT	8BD	
3	Power Output	6V6GT	6V6GT	7AC	
4	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		SOUND INC. PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6	40 CAP. 450V	FP140		DY-40-450	EL-4	Filter
7	140 CAP. 350V	TC26		M-25-25	TA-25	Cathode Bypass
8	25 CAP. 25V	TC26		M-25-25	TA-25	"
9	25 CAP. 25V	TC26		M-25-25	TA-25	"
10	.002 CAP. 1500V	OK331		TM-16-002	TR-22	Output Plate Bypass
11	.05 CAP. 400V	TP426		S-4-05	TC-15	Audio Coupling
12	.01 CAP. 400V	TP421		S-4-01	TC-11	"
13	.01 CAP. 400V	TP421		S-4-01	TC-11	"
14	750 CAP. 500V	XC255		NO. 3-38	1FM-28	Tone Comp.
15	250 CAP. 500V	XC240		NO. 3-35	1FM-335	"
16	50 CAP. 500V	XC225		NO. 3-45	1FM-45	"

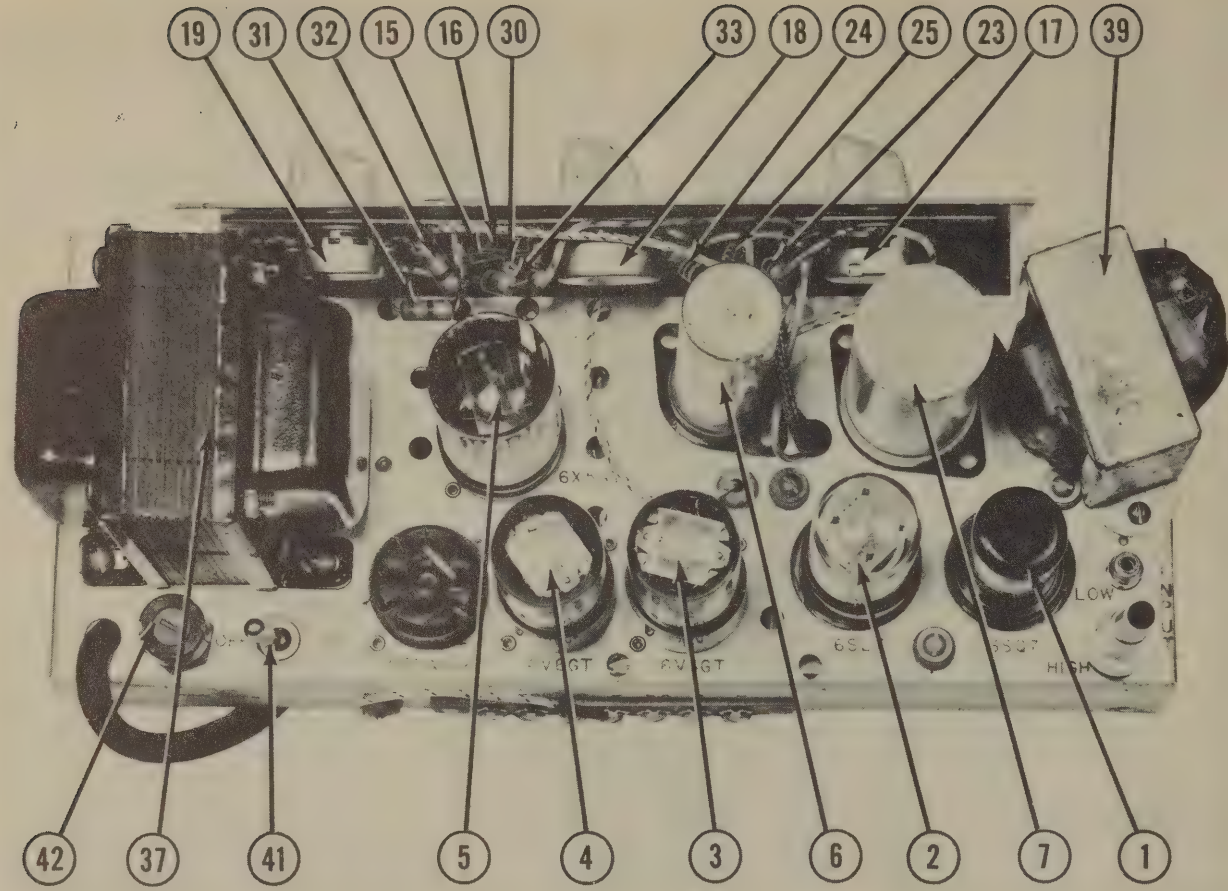
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SOUND INC. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	500KΩ		NR48	D13-133	M-60-Z	Mike Control
B Shaft			Not Req.	A	Not Req.	Attach to 17A per Instructions
18A	500KΩ		NR48	D13-133	M-60-Z	Phono Control
B Shaft			Not Req.	A	Not Req.	Attach to 18A per Instructions
19A	4 Meg.					Tone Control
B Shaft						Attach to 19A per Instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		SOUND INC. PART No.	IRC PART No.	
20	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. Mic. Amplifier Grid
21	1500Ω		BTS-1500	Br.-Grn.-Red Mic. Amplifier Cathode
22	270KΩ		BTS-270K	Red-Vi.-Yl. Mic. Amplifier Plate Load
23	1.8 Meg.		BTS-1.8 Meg.	Br.-Gray-Grn. Isolation
24	1.8 Meg.		BTS-1.8 Meg.	"
25	220KΩ		BTS-220K	Red-Red-Yl.
26	1500Ω		BTS-1500	Br.-Grn.-Red 1st AF Cathode
27	270KΩ		BTS-270K	Red-Vi.-Yl. 1st AF Plate Load
28	50KΩ		BTS-47K	Grn.-Blk.-Or. 2nd AF Plate Load
29	2700Ω		BTS-2700	Red-Vi.-Red 2nd AF Cathode
30	820KΩ		BTS-820K	Gray-Red-Yl. 2nd AF Grid
31	1.8 Meg.		BTS-1.8 Meg.	Br.-Gray-Grn. Tone Compensation
32	1.8 Meg.		BTS-1.8 Meg.	Br.-Gray-Grn. " "
33	1.8 Meg.		BTS-1.8 Meg.	Br.-Gray-Grn. " "
34	342Ω		AB-350	Output Cathode
35	15KΩ		AB-15K	Filter
36	5.6Ω		BM-1-56	Grn.-Blue-Gold Series Pilot Light-See Note

Note—Some models use three 1802 $\frac{1}{2}$ watt resistors in parallel.



PARTS LIST AND DESCRIPTIONS (Continued) TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	SOUND INC. PART No.	STANCOR PART No.	MERIT PART No.
37	117V AC 850W CT 5.8V AC	5.8V AC	5.8V AC			
	② .5A	② .06A	② 1.7A			

CHOKE (DRIVER)

ITEM No.	RATING			REPLACEMENT DATA		
	IMPEDANCE	DC RES.		SOUND INC. PART No.	STANCOR PART No.	MERIT PART No.
38	Matched to P-P Grids	PRI. SEC.	3300Ω CT		T20A19T	Connect secondary only

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		
	IMPEDANCE	DC RES.		SOUND INC. PART No.	STANCOR PART No.	MERIT PART No.
39	15000 Ω CT	520Ω	50 Ω CT		T22S64*	*Drill new mounting holes.
	90 16Ω	5.3Ω	1.0Ω			
	250Ω	1.0Ω	1.0Ω			
	500Ω	25Ω	25Ω			

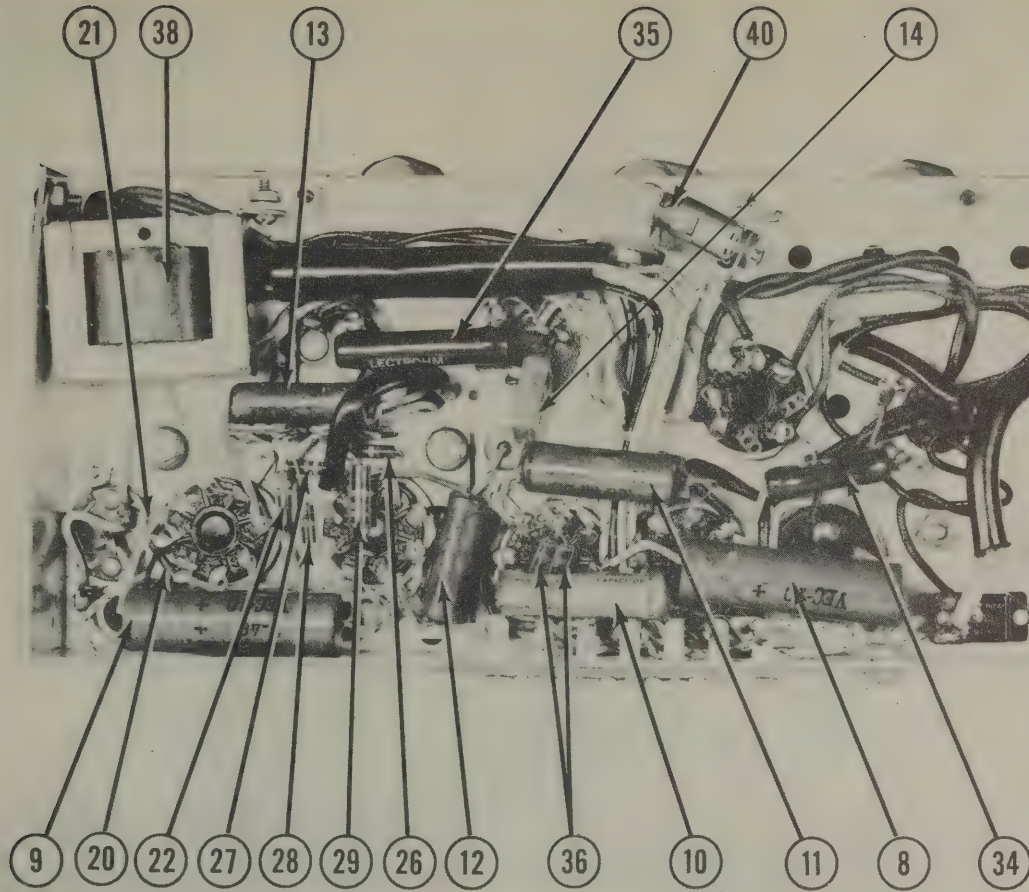
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	SOUND INC. PART No.	
40	Bayonet	7.5	0.2	White		Type 51

MISCELLANEOUS

ITEM No.	PART NAME	SOUND INC. PART No.	NOTES
41	Switch		On-Off
42	Fuse		2 Amp.

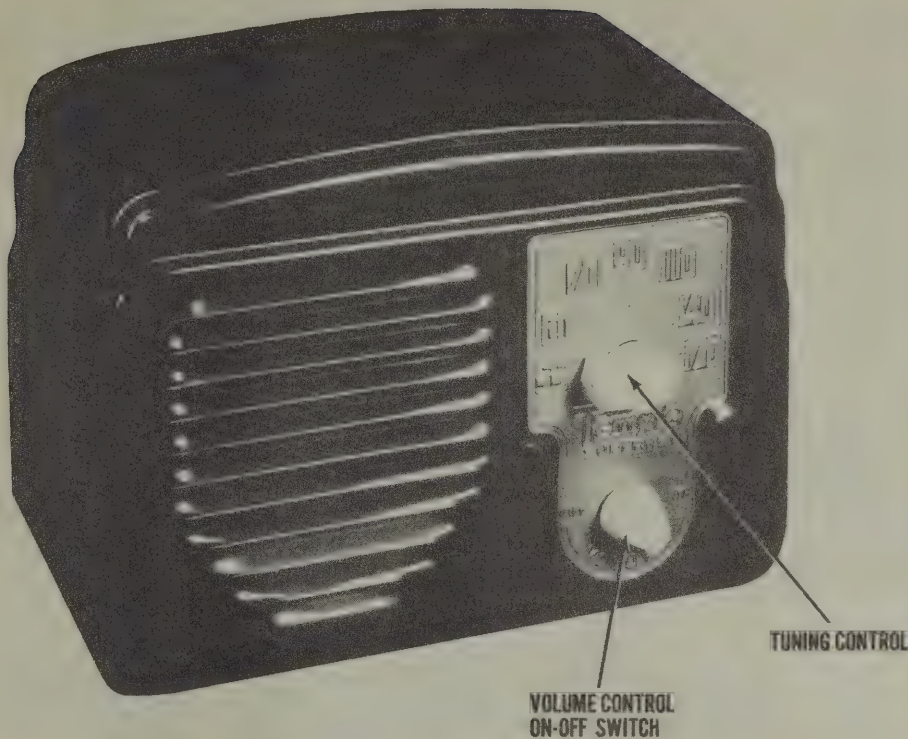
CHASSIS—BOTTOM VIEW





THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4716-24



TEMPLE MODEL G-418

TRADE NAME Temple, Model G-418, G-419
MANUFACTURER Templetone Radio Mfg. Corp., New London, Conn.
TYPE SET AC-DC Operated Superheterodyne Receiver
TUBES (FOUR) Types, 12SA7GT Converter, 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 110-120 Volts AC-DC

TUNING RANGE—BROADCAST 530-1700KC

RATING .220 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To use isolation transformer if available. If not, connect a .1 MFD. capacitor in series with low side of signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD.	High side to rear stator of tuning cap. Low side to B-..	455KC	Tuning cap. fully open.	Across voice coil	A1,A2.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to reduce hum modulation.
2	68 MMFD	High side to lug on ant. coil to which antenna hank is soldered. Low side to B-.	1700KC	"	"	A3	Adjust for maximum output.
3	68 MMFD	"	1550KC	Tune for maximum output.	"	A4	Adjust for maximum output.

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DATE 10/47 SET #26 FOLDER #4716-25

PARTS LIST AND DESCRIPTIONS

TEMPLE MODEL
8-418, 8-419

CHASSIS—TOP VIEW

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TEMPLE PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7GT	12SA7GT	8AD	
2	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
3	Power Output	50L6GT	50L6GT	7AC	
4	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TEMPLE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
5A	CAP. VOLT					
5	50	2N521	DSB-2x50-150	TA505	PRSA-150-504	EZ5515 Filter - Red
6	.02	TP423	S-4-02	TC-12	484-02	DT432 Output Plate Bypass
7	.005	TP408	S-6-005	TC-25	684-005	DT6D5 Audio Coupling
8	.002	TP405	S-6-002	TC-22	684-002	DT6D2
9	.05	TP426	S-4-05	TC-15	484-05	DT455 AVC Filter
10	.12	TP418	RFH-6-1	TC-1	684-1	DT6P1 Line Filter
11	.47	MC225	YO-5-45	1FM-45	1468-00005	5W5Q5 Diode RF Filter

CONTROLS

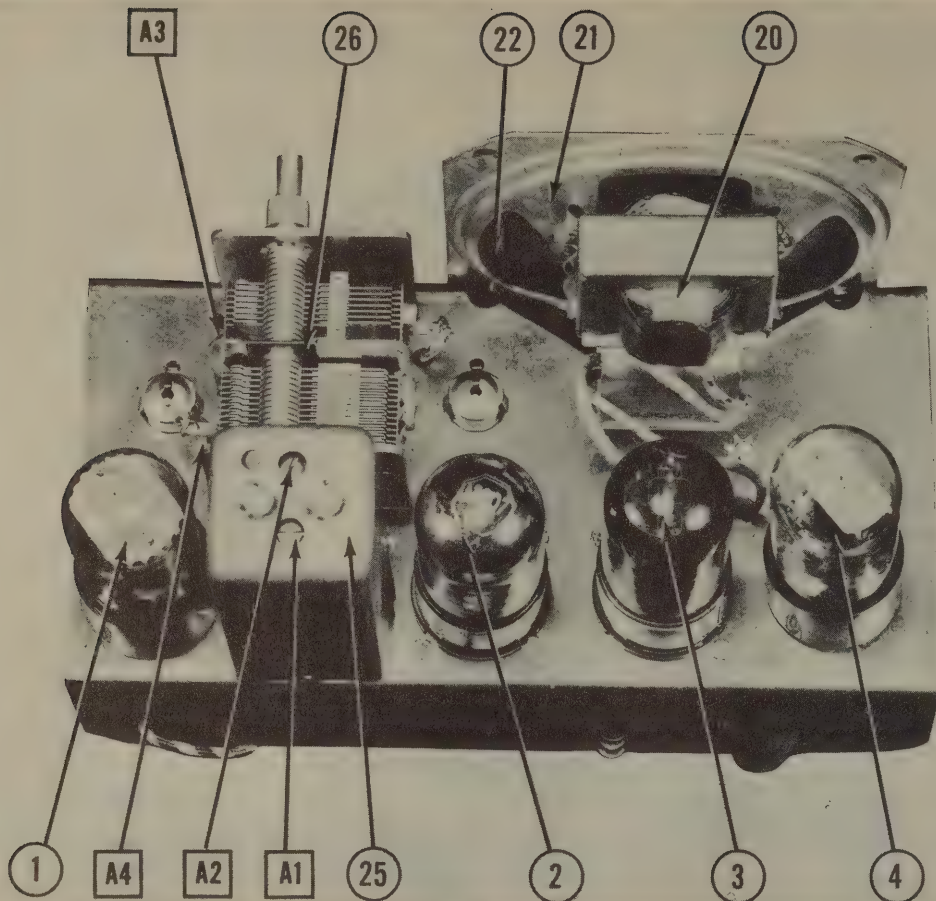
ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		TEMPLE PART No.	MALLORY PART No.	IRC PART No.	
12	2 Meg. \pm	RPL6			Volume Control & Sw.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		TEMPLE PART No.	IRC PART No.	
13	12K Ω		BTS-12K	Br.-Red-Or. Oscillator Grid
14	6.8 Meg.		BTS-6.8 Meg.	Blue-Gray-Grn. AF Network
15	3.9 Meg.		BTS-3.9 Meg.	Or.-White-Grn. AF Grid
16	220K Ω		BTS-220K	Red-Red-Yl. AF Plate Load
17	330K Ω		BTS-330K	Or.-Or.-Yl. Output Grid
18	2200 Ω		BTA-2200	Red-Red-Red Filter
19	47 Ω		BW-2-47	Yl.-Yl.-Blk. Line Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE PRI. SEC.	DC RES. PRI. SEC.	TEMPLE PART No.	THORDAR'N PART No.	
20	2000 Ω	3.0 Ω	125 Ω	A-3876*	*Bend mounting tabs down, file out slots and mount on original bracket.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA	INSTALLATION NOTES
	TEMPLE PART No.	JENSEN PART No.	
21	FIELD PM 3.00	ST-113	
22	CONC DIA. VC DIA. 1/2"	EH-23 Mod. P4-X	
		NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.	

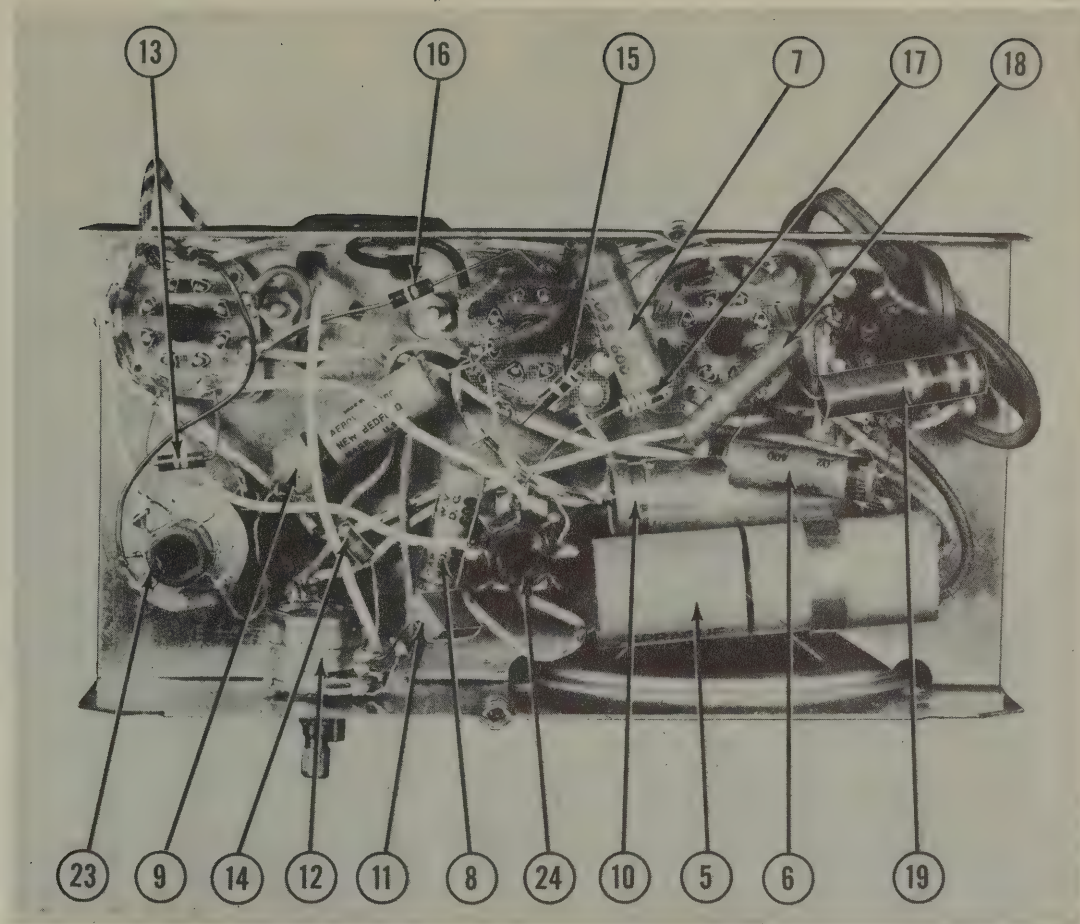
R F COILS

ITEM No.	USE	DC RES.	REPLACEMENT DATA	NOTES
		PRI.	SEC.	
23	Ant. Coil	31Ω	3Ω	
24	Osc. Coil	5Ω	5Ω	
25	Input IF	21Ω	21Ω	
				Add 50MΩ from grid to high side tuning cap.

MISCELLANEOUS

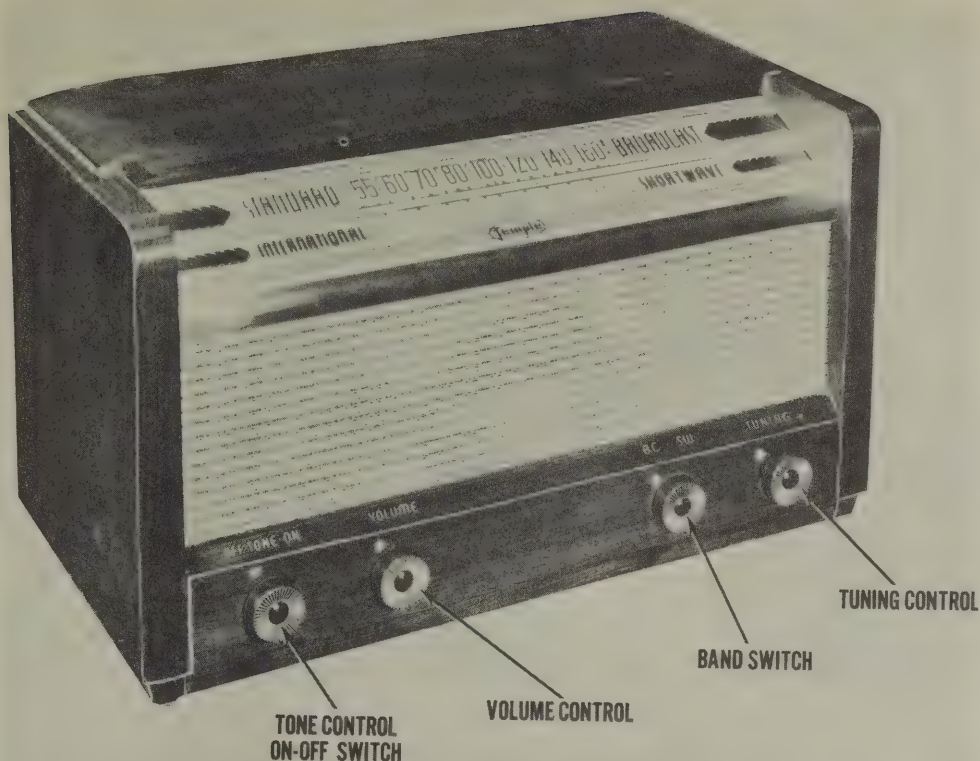
ITEM No.	PART NAME	TEMPLE PART No.	NOTES
26	2 Gang Var. Cap	CV24	15-446 MMF, 17-146 MMF

CHASSIS—BOTTOM VIEW



TEMPLE MODEL
9-418, 9-419

TEMPLE MODEL
9-418, 9-419



TEMPLE MODEL G-522

TRADE NAME Temple, Model G-522
MANUFACTURER Templetone Radio Mfg. Corp., New London, Conn.
TYPE SET AC-DC Operated 2 Band Superheterodyne Receiver with Loop Antenna
TUBES (FIVE) Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 110-120 Volts AC-DC
TUNING RANGE—BROADCAST 532-1700KC
RATING .230 Amp. @ 117 Volts AC
SHORT WAVE 5.6-12.5MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .01 MFD	High side to rear stator of tuning cap. Low side to chassis.	455KC	BC (counter clockwise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	Loop	1700KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3	"	1550KC	"	Tune for maximum output.	"	A6	Adjust for maximum output.
4 .01 MFD cap. in series with 450Ω carbon res.	High side to ext. ant. lug. Low side to chassis.	12.5MC	SW (right hand position)	Tuning cap. fully open.	"	A7	" " " "
5 "	"	6MC	"	Tune for maximum output.	"	A8	Rock tuning cap. and adjust for maximum output. Repeat Step 4.
6 "	"	10.5MC	"	"	"	A9	Rock tuning cap. and adjust for maximum output.

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ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TEMPLE PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7GT	12SA7GT	9AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP. VOLT	TEMPLE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	50	CEL-3A80	TP3571	DY-604020-	TEL-340T	Filter
6B	40			150		
7	20		TP425	UT-201	BR2015	
8	.02		TP423	TC-12	DT452	Output Plate Bypass
9	.25		TP430	TC-2	DT4P25	Tone Compensation
10	.005		TP408	TC-25	DT6D5	Audio Coupling
11	.005		TP408	8-6-005	DT6D5	
12	.01		TP430	8-6-005	DT6D5	
13	.02		TP430	TC-2	DT4P25	AVC Filter
14	.02		TP430	8-6-01	DT6S1	Ext. Ant. Coupling
15	1		TP423	TC-11	DT4S2	RF Bypass Power Supply
16	100		MC235	MO-5-31	SW5T1	AF Plate Bypass
17	910		MC235	MO-5-31	SW5T1	Oscillator Grid
18						Fixed Padder

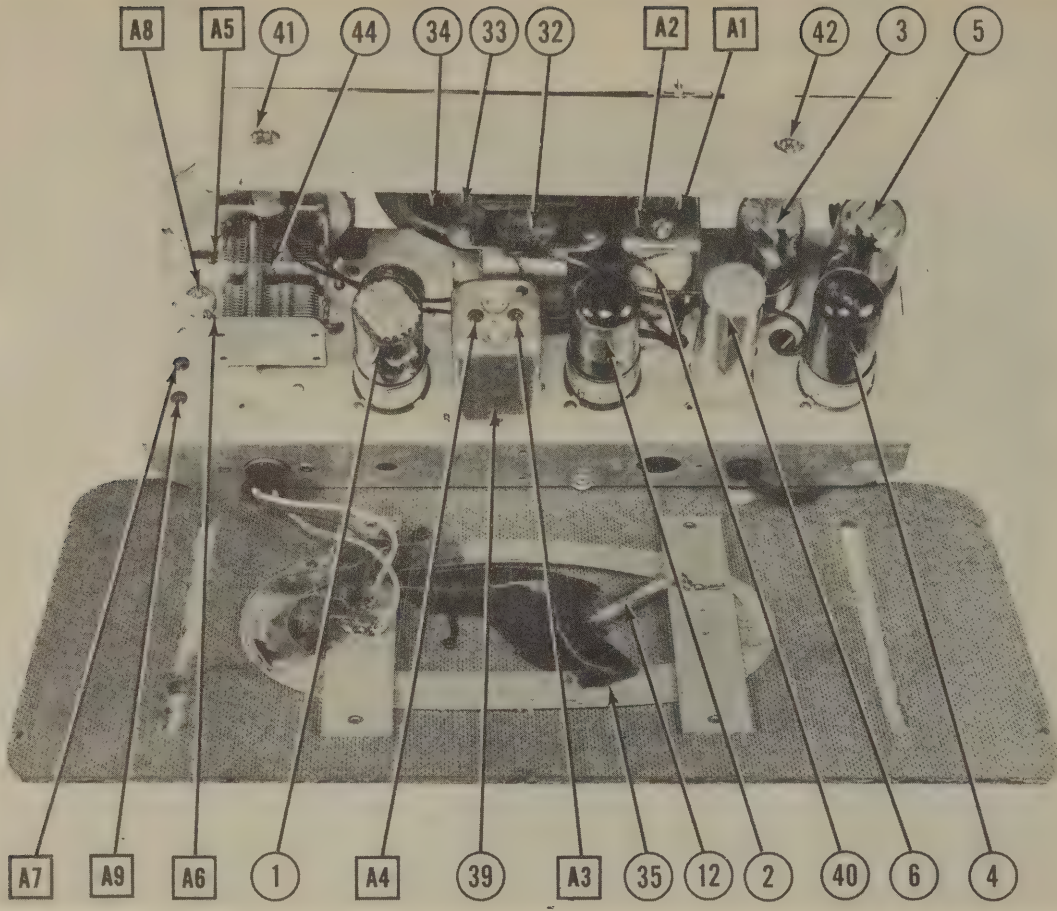
†Parallel sections to obtain desired capacity.

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
	RESIST. ANCE WATTS	TEMPLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
13A	500K2	RP6-504B	MK401	D13-133	AM-60-Z	Volume Control
13B	Start	Not Req.	Not Req.	E	KSR-3	Attach to 19A per instructions
19A	10K2	RP5-103B	UM18	D13-116	AM-81-Z	Tone Control
19B	Start	Not Req.	SS25	E	KSR-3	Attach to 19A per instructions
C	Switch		M26	41	SW-A	

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE WATTS	TEMPLE PART No.	IRC PART No.	
20	120K2		BTS-120K	Br.-Red-VI. Converter Grid
21	22K2		BTS-22K	Red-Red-Or. Oscillator Grid
22	2.2 Meg.		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
23	3.9 Meg.		BTS-3.9 Meg.	Or.-White-Grn. AF Grid
24	220K2		BTS-220K	Red-Red-VI. AF Plate Load
25	470K2		BW-470K	VI.-VI.-Blk. Output Grid
26	47K		BW-47K	VI.-VI.-Blk. Output Cathode
27	100K		BW-100K	Br.-Blk.-Br. Pilot Light Shunt
28	150K		BW-150K	Br.-Blk.-Br. Rectifier Ballast
29	100K		BW-100K	VI.-VI.-Blk. Parasitic Suppressor-See Note
30	47K		BW-47K	Br.-Blk.-Red Filter
31	1000K		BTA-1000	

Note-Not used in all models.

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	PRI. SEC.	DC RES.	SEC.	TEMPLE		MERIT	
					PART No.	THORDA'N PART No.		
32	160K2	3.3K	130K	.56K	651514	A-3876	T22S45	A-2828



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA	INSTALLATION NOTES
33	FIELD	TEMPLE PART No.	JENSEN PART No.
	PM	EH6-2	SP-105
34	COMP DIA.	VC DIA.	Mod. P5-X
	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

R F COILS

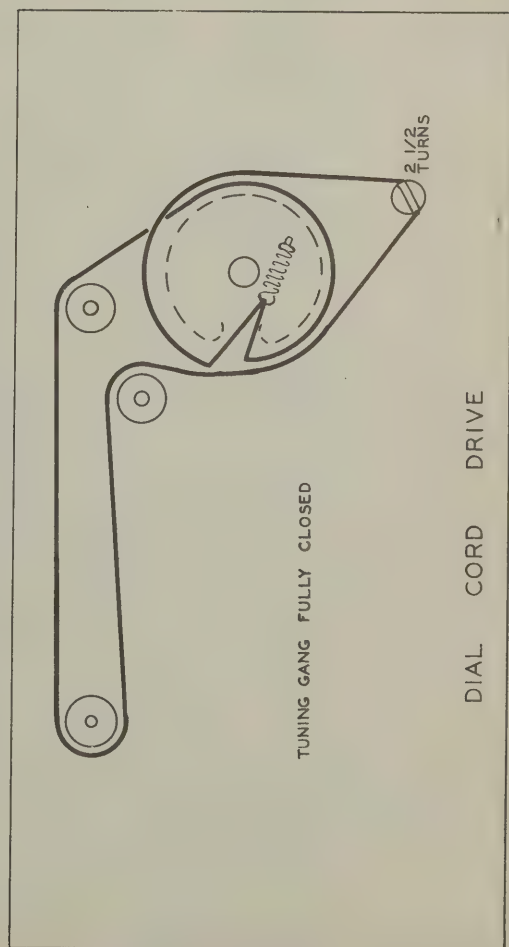
ITEM No.	USE	DC RES.	REPLACEMENT DATA	
		PRI.	SEC.	
35	Loop Ant.	12	1.2Q	TEMPLE PART No.
36	SW Ant.Coil	.3Q	Q2	WEISSNER PART No.
37	Osc. Coil	6.8Q	Q2	
38	SW Osc. Coil	17Q	Q2	14-1040
39	Input IF	16Q	Q2	16-6858
40	Output IF	16Q	Q2	16-6870

DIAL LIGHT

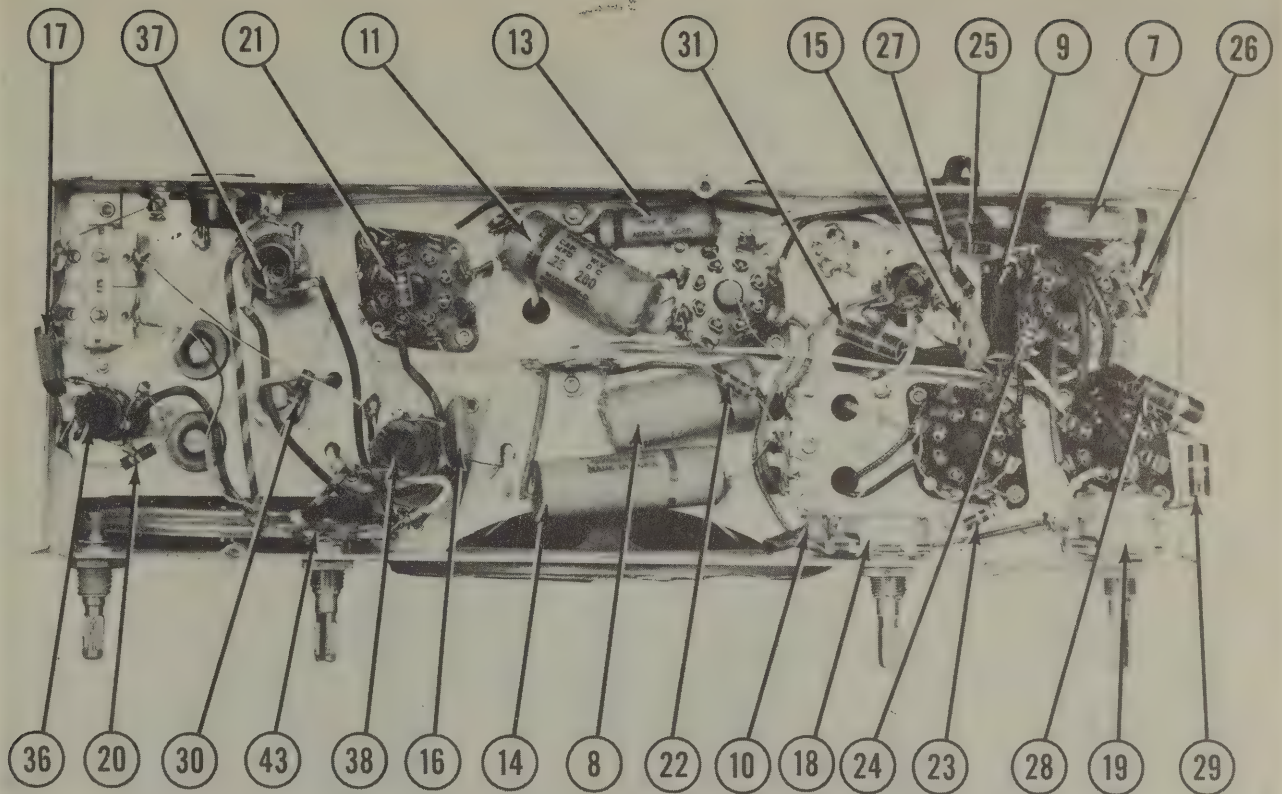
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA	INSTALLATION NOTES
				BEAD COLOR	
41	Bayonet	2.9	0.17	White	Type 291
42					

MISCELLANEOUS

ITEM No.	PART NAME	TEMPLE PART No.	NOTES
43	Bandswitch		
44	2 Gang Var. Cap	CVG	21-449MMF, 22-187MMF



CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS

TRUETONE
 MODEL D2743

CHASSIS—TOP VIEW

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRUE-TONE PART No.	STANDARD REPLACEMENT		
1	Converter	12B56	12B56	70H	
2	1F Amp.	12B46	12B46	7BK	
3	Det.-AVC-AF	12A76	12A76	7B1	
4	Power Output	50B5	50B5	7B2	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TRUE-TONE PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	
6A	CAP. 40	B-9564-1	BRD4215	2N514	M-2x40-150	TA-240
7	150					
B	20					
8	150					
9	.05	400	BD410503	TP426	S-4-05	TC-15
10	.05	400	BD410503	TP426	S-4-05	TC-15
11	.05	400	BD410503	TP426	S-4-05	TC-15
12	.05	400	BD410503	TP426	S-4-05	TC-15
13	.05	400	BD410503	TP426	S-4-05	TC-15
14	.05	400	BD410503	TP426	S-4-05	TC-15
15	.05	400	BD410503	TP426	S-4-05	TC-15
16	220	500	BD210503	TP426	S-4-05	TC-15
17	100	500	BD74A221	5W5T1	1FM-31	1469-0001

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TRUE-TONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	500KΩ	±	B-54466-2	MK401	AM-60-Z	Volume Control
18B	500KΩ	±	Not Req.	MK401	KSS-3	Attach to 18A per instructions
19A	500KΩ	±	B-57841-1	Not Req.	AM-60-Z	Tone Control
19B	500KΩ	±	Not Req.	Not Req.	KSS-3	Attach to 19A per instructions
20	500KΩ	±	Not Req.	M-26	SW-A	

RESISTORS

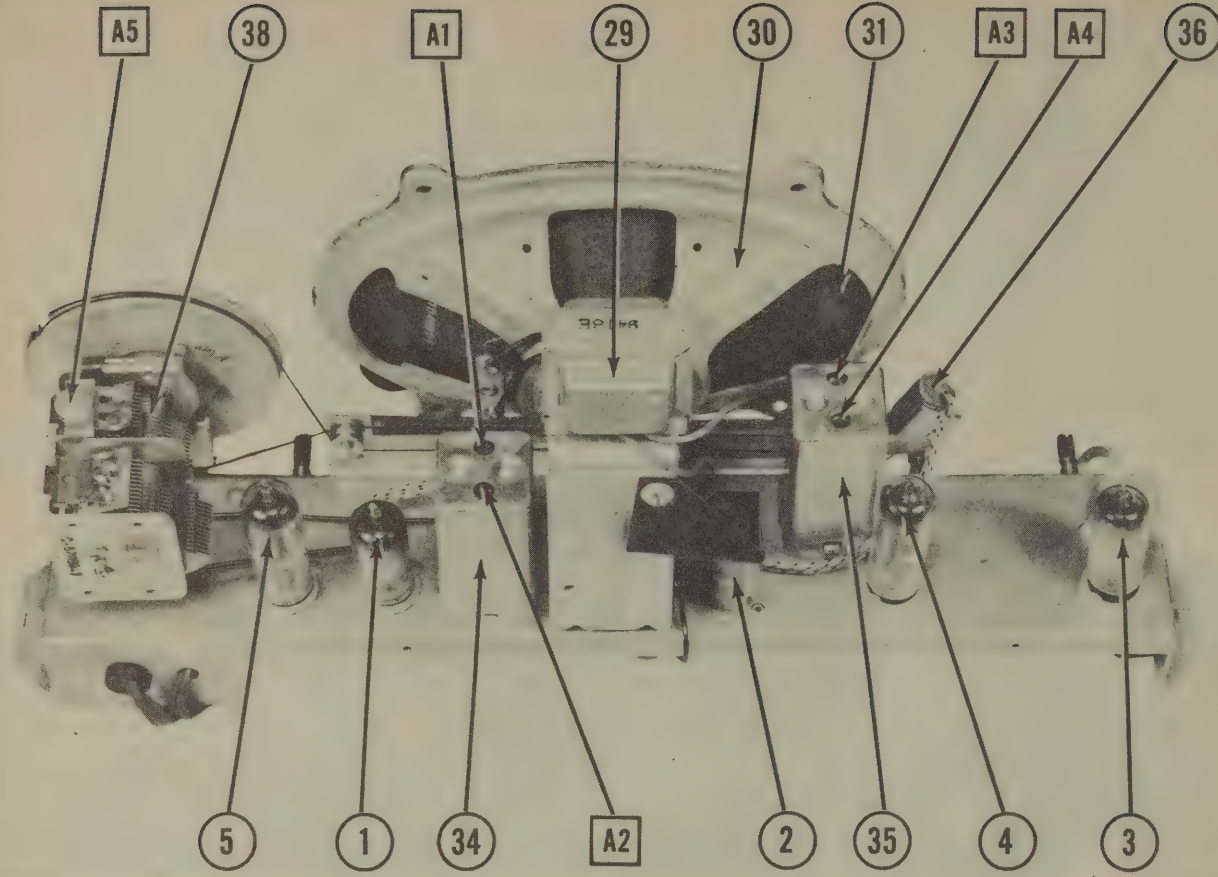
ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		TRUE-TONE PART No.	IRC PART No.	WATTS	
20	22KΩ	1/3	BR17B223	BTS-22K	Red-Red-Or. Oscillator Grid
21	68Ω	1/3	BR17B680	BW-4-68	Blue-Gray-Blk. 1F Cathode
22	3.3 Meg.	1/3	BR17B335	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
23	6.8 Meg.	1/3	BR17B685	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
24	220KΩ	1/3	BR17B224	BTS-220K	Red-Red-Yl. AF Plate Load
25	100KΩ	1/3	BR17B104	BTS-100K	Br.-Blk.-Yl. AF Plate Decoupling
26	15KΩ	1/2	BR160-151	BW-4-150	Br.-Grn.-Br. Output Cathode
27	15KΩ	1	BR17E152	BTA-15K	Br.-Grn.-Or. Bleeder-See Note
28	1500Ω	1	BR17E152	BTA-1500	Br.-Grn.-Red Filter

Note-Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TRUE-TONE PART No.	STANCOR PART No.	THORDARN PART No.	MERIT PART No.	
29	IMPEDANCE 2200Ω	3.6Ω	245Ω	A-3876*	T22845*	A-2928*

*Bend mounting tabs down, file out slots and mount on original bracket.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		TRUE-TONE PART No.	JENSEN PART No.	
30	FIELD 3.6Ω	C-57843		
31	CONC. DIA. 4-15/16"			NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.
	X 7-1/8"			

R F COILS

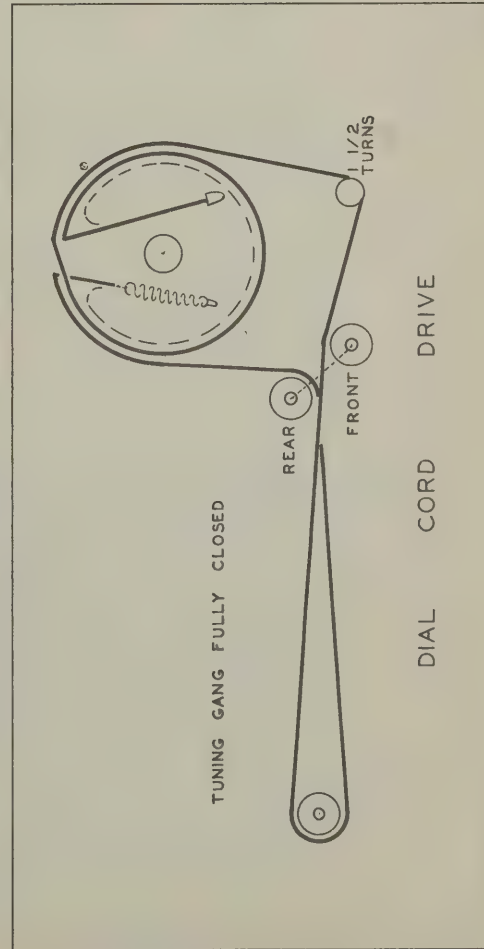
ITEM No.	USE	REPLACEMENT DATA	
		TRUE-TONE PART No.	MEISSNER PART No.
32	Loop Ant.	D-57870	
33	Osc. Coil	B-57842	
34	Input If	B-56722-1	16-6666
35	Output If	B-56718-1	16-6670

DIAL LIGHT

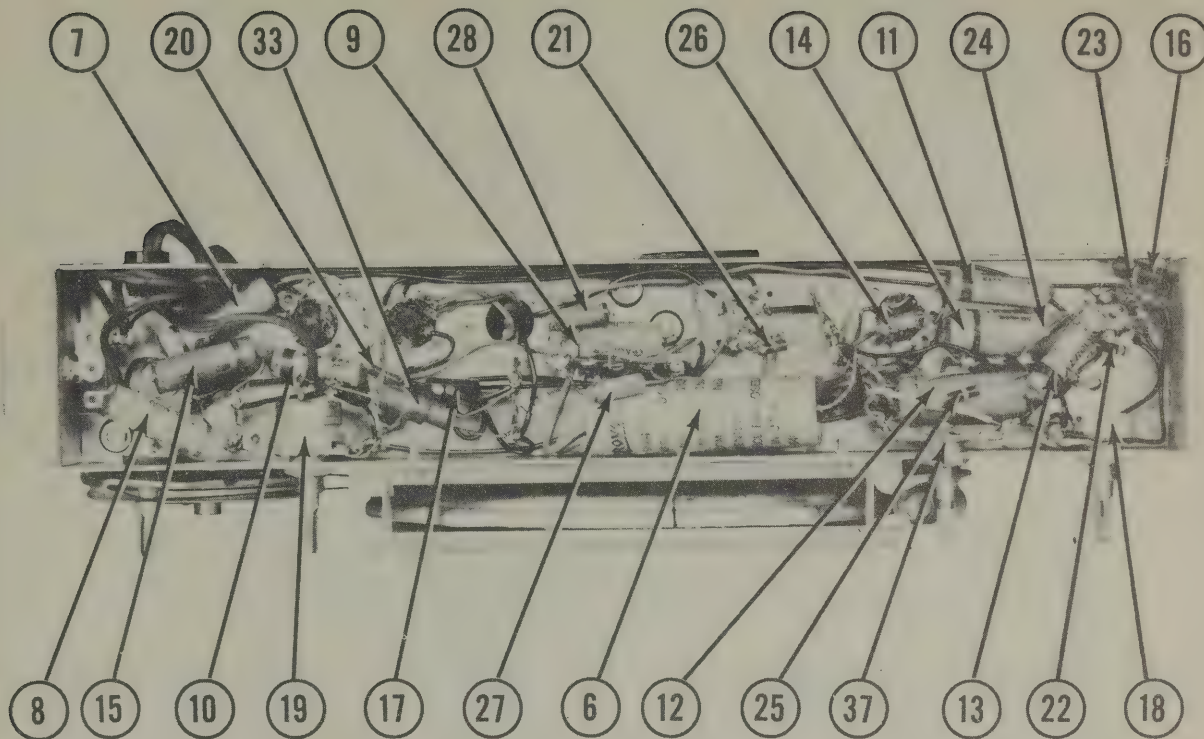
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	TRUE-TONE PART No.	
36	Bayonet	6-8	0.15A	Brown	A-6158	Type 47

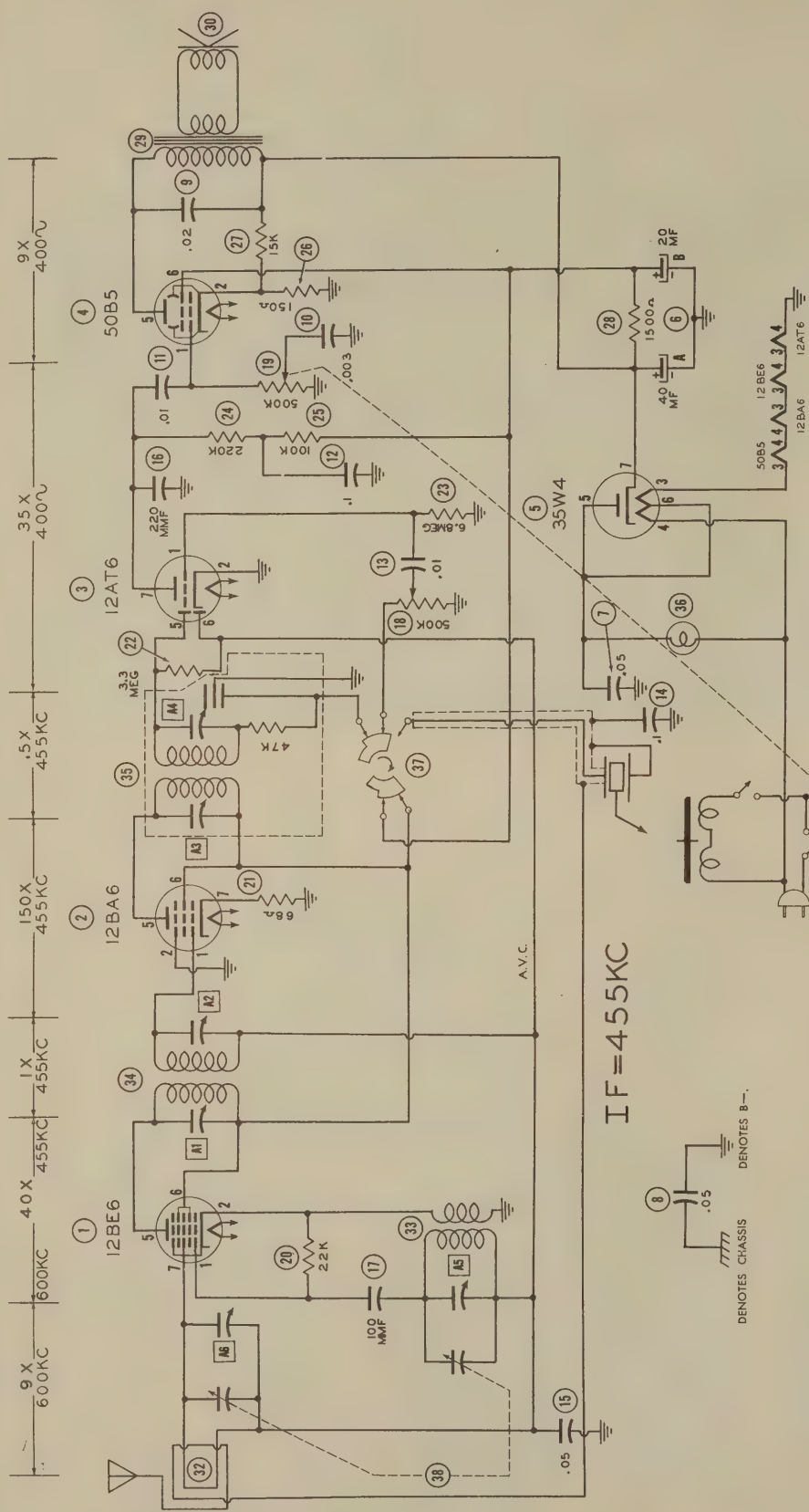
MISCELLANEOUS

ITEM No.	PART NAME	TRUE-TONE PART No.	NOTES
37	Switch	B-51576-2	Radio-Phono
38	2 Gang Var. Cap	C-57859-1	12-455VMT, 30-190MT
A6	Trimmer	C-57879-1	Ant. Adjustment
	Dial Pointer	B-57857-1	
	Dial Scale	C-57862-1	



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-10VDC	0V	24VAC	12VAC	92VDC	-92VDC	-35VDC
2	12BA6	-35VDC	0V	24VAC	37VAC	92VDC	92VDC	8VDC
3	12AT6	-55VDC	0V	12VAC	0V	-4VDC	-35VDC	50VDC
4	50B5	0V	5.2VDC	87VAC	37VAC	117VDC	92VDC	0V
5	35W4	0V	0V	87VAC	117VAC	113VAC	113VAC	125VDC

RADIO-PHONO SWITCH IN RADIO POSITION

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	20KΩ	.8Ω	21Ω	11Ω	140KΩ	140KΩ	3.5 MEG
2	12BA6	3.5 MEG	0Ω	21Ω	31Ω	140KΩ	140KΩ	62Ω
3	12AT6	7 MEG	0Ω	11Ω	0Ω	520KΩ	3.5 MEG	460KΩ
4	50B5	500KΩ	150Ω	72Ω	31Ω	140KΩ	140KΩ	500KΩ
5	35W4	INF.	INF.	72Ω	98Ω	95Ω	95Ω	140KΩ

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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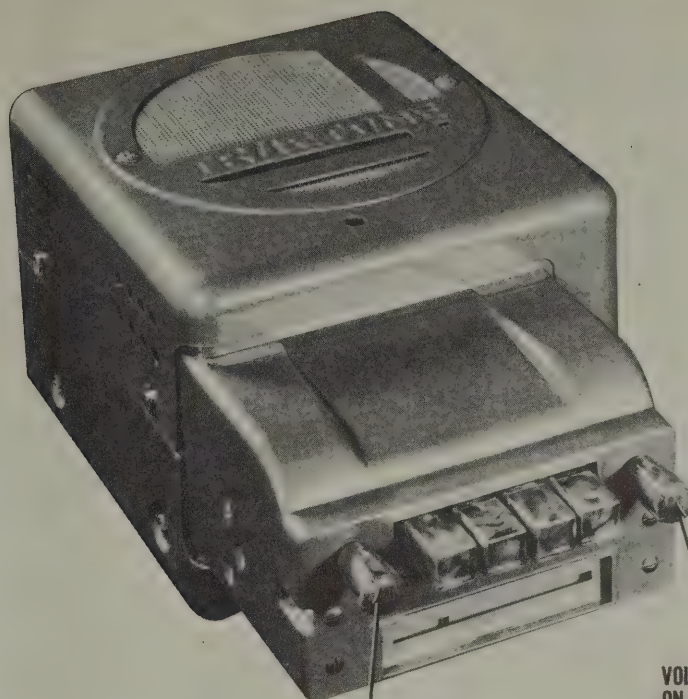
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4 716-27

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measure-

TRUETONE
MODEL D4620



TUNING CONTROL

VOLUME CONTROL
ON-OFF SWITCH

TRUETONE
MODEL D4620

TRUETONE MODEL D4620

TRADE NAME	Truetone, Model D4620 (Factory Model 5012)					
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.					
TYPE SET	Battery Operated Universal Automotive Receiver with Pushbutton Tuning					
TUBES (FIVE)	Types, 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6K6GT Power Output, 6X5GT Rectifier					
POWER SUPPLY	6 Volt Storage Battery					
TUNING RANGE—BROADCAST	530-1600KC		RATING	5.5 Amp. @ 6.3 Volts DC		
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin 4 (grid) 6SK7. Low side to chassis.	455KC	Tuning slugs out completely	Across voice coil	A1,A2	Adjust for maximum output.
.1 MFD.	High side to Pin 8 (grid) of 6SA7. Low side to chassis.	"	"	"	A3,A4.	" " " "
30 MMFD	High side to ant. lead. Low side to chassis.	1600KC	"	"	A5,A6	" " " "
30 MMFD	"	1400KC	Tune for maximum output.	"	Ant. Coil(44)	Check to see if this adjustment is necessary by adjusting A6 for maximum output. If a large increase in output is obtained then the antenna coil must be adjusted. First repeat Step 3 (adjust A6 at 1600 KC for maximum output) then adjust position of antenna coil for maximum output at 1400KC.
30 MMFD	"	1600KC	Tuning slugs completely out	"	A6	Adjust for maximum output. If position of antenna coil was changed repeat Steps 4 and 5 until no further improvement can be made.

HOWARD W. SAMS & CO., INC.

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DATE 10/47 SET #26 FOLDER #4716-28

PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

TRUETONE
MODEL D4620

CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT		
1	Converter	6SA7	6SA7	8R	
2	IF Amp.	6SK7	6SK7	8N	
3	Det.-AVC-AF	6SQ7	6SQ7	8Q	
4	Power Output	6XG6T	6XG6T	7S	
5	Rectifier	6X50T	6X50T	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TRUETONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	15	119-105	FP339	DY-310	EL-326	UP2245C
15	350					
16	15					
17	25					
20	120					
21	100-31					
22	120					
23	100-31					
24	120					
25	100-31					
26	1600					
27	100-125					
28	100-87					
29	100-26					
30	100-25					
31	100-20					
32	100-13					
33	100-10					
34	100-5					
35	100-3					
36	100-1					
37	100-0.5					
38	100-0.25					
39	100-0.1					
40	100-0.05					
41	100-0.025					
42	100-0.01					
43	100-0.005					
44	100-0.002					
45	100-0.001					
46	100-0.0005					
47	100-0.0002					
48	100-0.0001					
49	100-0.00005					
50	100-0.00002					
51	100-0.00001					
52	100-0.000005					
53	100-0.000002					
54	100-0.000001					
55	100-0.0000005					

*Not used in all models.

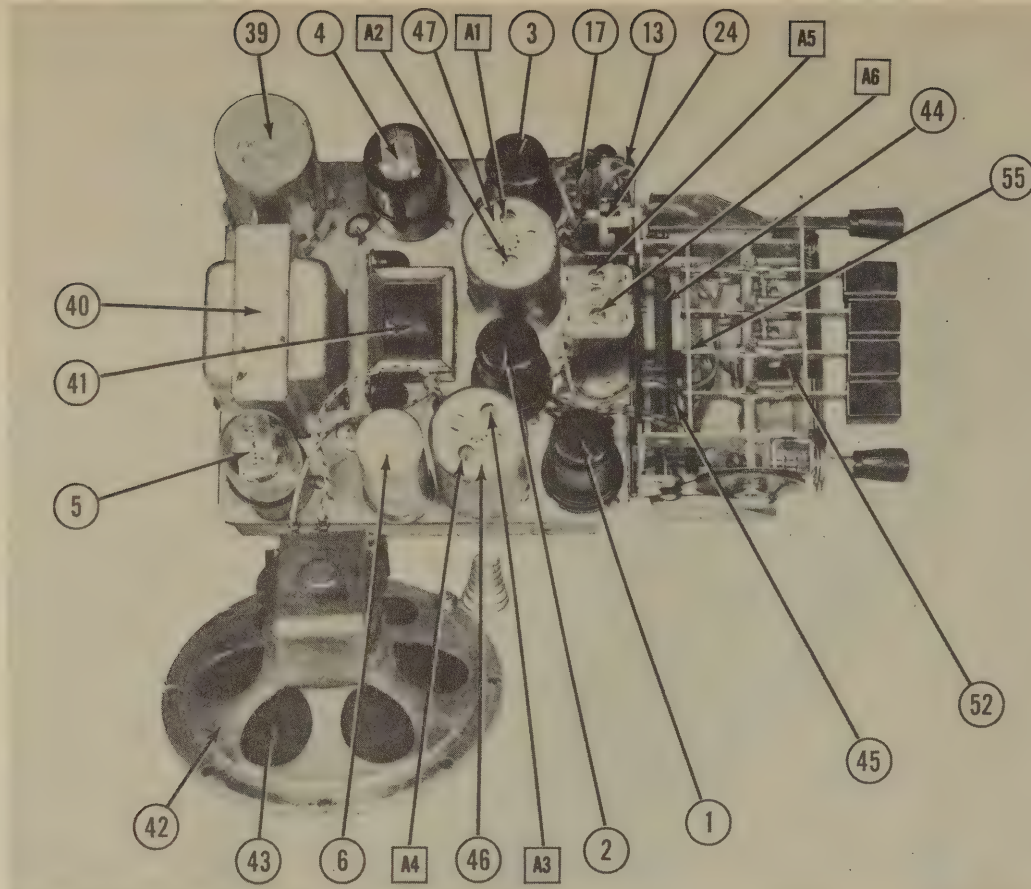
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		TRUETONE PART No.	MALLORY PART No.	CLAROSTAT PART No.	
24	1 Meg.	101276			Volume Control & Switch

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		TRUETONE PART No.	MALLORY PART No.	IRC PART No.	
25	1 Meg.				
26	33KΩ				
27	15KΩ				
28	150Ω				
29	330Ω				
30	33KΩ				
31	47KΩ				
32	220KΩ				
33	47KΩ				
34	680Ω				
35	1500Ω				
36	100Ω				
37	100Ω				
38	100Ω				

Note-Not used in all models.



PARTS LIST AND DESCRIPTIONS (Continued)

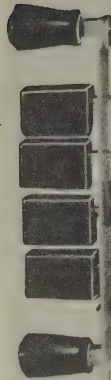
VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				TRUE-TONE PART No.	MALLODY PART No.	RADIART PART No.	
39	Interrupter	6.3	115~	12629	889	5307	

TRANSFORMER (VIBRATOR)

ITEM No.	RATING	REPLACEMENT DATA			MERIT
		TRUE-TONE	STANCOR	THORDARSON	

CHASSIS—BOTTOM VIEW



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	OV.	OV.	190VDC	80VDC	-9.4VDC	OV.	6.1VDC	-1.1VDC
2	12SK7	OV.	OV.	OV.	-7VDC	1.3VDC	80VDC	6.1VDC	190VDC
3	12SQ7	OV.	-7VDC	OV.	-7VDC	-6VDC	90VDC	OV.	6.1VDC
4	6XGGT	OV.	6.1VDC	210VDC	190VDC	OV.	OV.	OV.	14.5VDC
5	6X5GT	OV.	6.1VDC	245VAC	OV.	245VAC	OV.	OV.	220VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0Ω	0Ω	50KΩ	65KΩ	35KΩ	.4Ω	.1Ω	5 Meg.
2	12SK7	0Ω	0Ω	0Ω	4 Meg.	150Ω	65KΩ	.1Ω	50KΩ
3	12SQ7	0Ω	5 Meg.	0Ω	4 Meg.	1 Meg.	270K	0Ω	.1Ω
4	6XGGT	0Ω	.1Ω	50KΩ	50KΩ	500KΩ	INF.	0Ω	680Ω
5	6X5GT	0Ω	.1Ω	210Ω	INF.	180Ω	INF.	0Ω	50KΩ

§ TAKEN WITH VACUUM TUBE VOLTMETER.

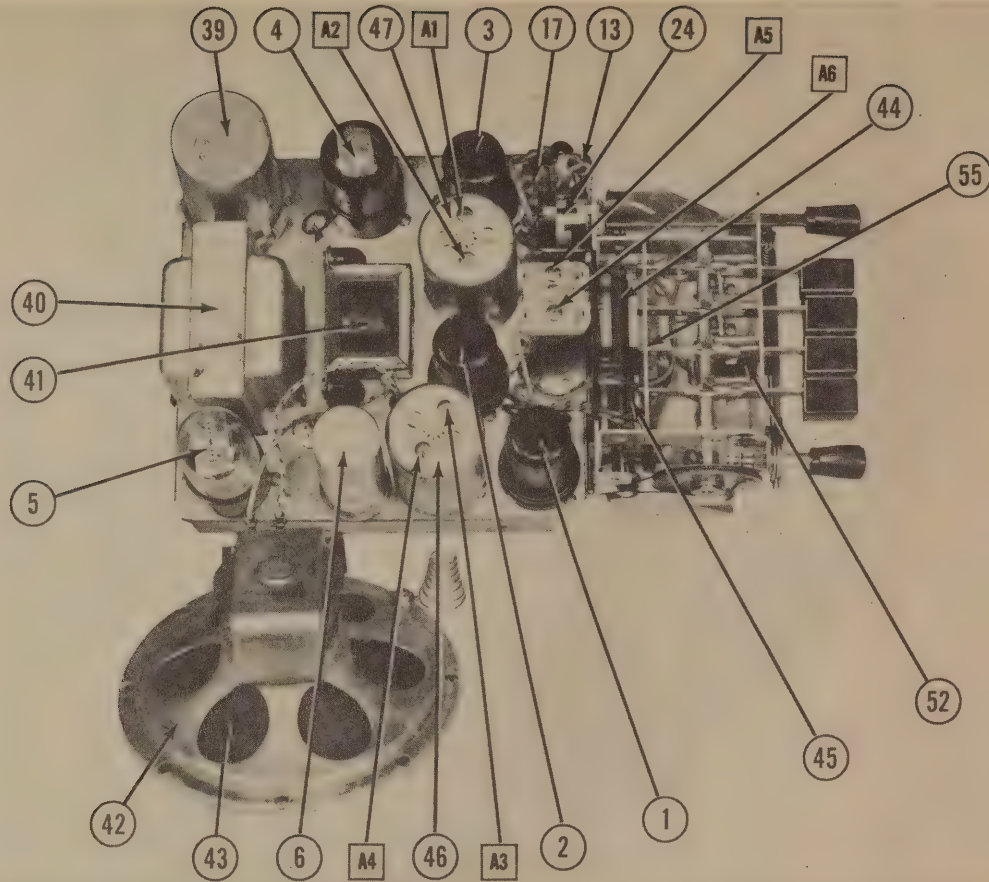
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Battery voltage maintained at 6.3 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.

PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

TRUETONE
MODEL D4620

CHASSIS—TOP VIEW



CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT		
1	Converter	6SA7	6SA7	9R	
2	IF Amp.	6SK7	6SK7	8N	
3	Det.-AVC-AF	6SQ7	6SQ7	8Q	
4	Power Output	6X6GT	6X6GT	7S	
5	Rectifier	6X5GT	6X5GT	6S	

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	TRUETONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	15	350	119-105	FP339	DY-310	EL-326	AF32K4A	UP2245C	■ Filter
B	15	350							▲ Cath. Bypass
C	20	25							Hash Filter
7	.5	120	100-31						"
8	.5	120	100-31						"
9	.5	120	100-31						"
10	.0035	1600	100-125						Buffer
11	.01	600	100-87	OM343	TM-16-004	TR-24	1684-004	MD16D4	Output Plate Bypass
12	.02	400	100-26	TP410	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
13	.02	400	100-26	TP423	S-4-02	TC-12	484-02	DT4S2	
14	.002	600	100-25	TP405	S-6-002	TC-22	684-002	DT6D2	
15	.1	200	100-20	TP428	S-4-1	TC-1	484-01	DT4P1	
16	.05	400	100-13	TP426	S-4-05	TC-15	484-05	DT4S5	IF Cath. Bypass*
17	.05	400	100-9	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
18	220	500	C-9F3-10	MC240	MO. 5-322	LFM-325	1468-00025	SW5735	Screen Bypass
19	250	500	129-12	MC240	MO. 5-325	LFM-325	1468-00025	SW5725	Hash Filter
20	500	500	129-2	MC245	MO. 5-35	LFM-35	1468-0005	SW575	Pwr. Supp. Bypass
20A	100	129-161		MC235	MO. 5-31	LFM-31	1468-0001	SW571	Audio Plate Bypass
21	200	500	129-21	MC237	MO. 5-31	LFM-31	1468-0001	SW571	Diode Filter
22	500	500	129-21	MC237	MO. 5-32	LFM-32	1468-0002	SW572	Osc. Grid Capacitor
23	500	500	129-2	MC245	MO. 5-32	LFM-32	1468-0002	SW572	RF Coupling
24	80	500	129-188	MC245	MO. 5-35	LFM-35	1468-0005	SW575	Fixed Padder

*Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
24	1 Meg. 1	101276				Volume Control & Switch

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
25	1 Meg.	C-9B1-31	BTS-1	BTS-1		Br.-Blk.-Grn. Converter Grid
26	23K.	C-9B1-22	BTS-33K	BTS-33K		Br.-Grn.-Or. Oscillator Grid
27	15K.	C-9B2-76	BTA-15K	BTA-15K		Br.-Grn.-Or. Screen Dropping
28	150K	C-9B1-52	BW-150	BW-150		Br.-Grn.-Er. IF Cathode
29	330K	C-9B1-56	BW-2-530	BW-2-530		Or.-Or.-Br. IF Cathode - See Note
30	3.3 Meg.	C-9B1-34	BTS-3.3	BTS-3.3		Or.-Or.-Grn. AVC Network
31	4.7K.	C-9B1-23	BTS-47K	BTS-47K		Yl.-Vi.-Gr. Diode Rf Filter
32	4.7 Meg.	C-9B1-35	BTS-4.7	BTS-4.7		Yl.-Vi.-Gr. Af Grid
33	220K	C-9B1-27	BTS-220K	BTS-220K		Red-Red-Yl. Af Plate Load
34	470K	C-9B1-29	BTS-470K	BTS-470K		Yl.-Vi.-Yl. Output Grid
35	580K	C-9B1-60	BTS-580	BTS-580		Blue-Gray-Br. Output Cathode
36	150K	C-9B2-64	BTA-1500	BTA-1500		Br.-Grn.-Red Filter
37	100K	C-9B1-50	BW-100	BW-100		Br.-Blk.-Er. Hash Suppression
38	100K	C-9B1-50	BW-100	BW-100		Br.-Blk.-Er. Hash Suppression

Note-Not used in all models.

PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				TRUETONE PART No.	MALLORY PART No.	RADIART PART No.	
39	Interrupter	6.3	115V	12829	859	5307	

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	TRUETONE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
40	5.0V DC	200V CT			104295	P-4060**	T22R20**	P-2969**	

**Drill new 1/8" dia. hole.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI.	SEC.	TRUETONE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
41	7000Ω	3.3Ω	680Ω	.6Ω	B-120-10235	A-3878	T22S47	A-2931	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC IMP.	TRUETONE PART No.	JENSEN PART No.	
42	4.7Ω	3.3Ω	B-18B-10236		
43	4-3/4"	1/2"	NOT READILY REPLACEABLE	USE COMPLETE SPEAKER UNIT.	

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	
44	Ant. Coil		10Ω	C-211-10961		Items 44 & 45 are slug tuned and ganged together and are part of Tuning Assembly.
45	Osc. Coil	.5Ω	5Ω			
46	Input IF	25Ω	4Ω	108139B	16-6658	
47	Output IF	11Ω	16Ω	108211	16-6660	
48	A. Choke		0Ω	10568		
49	" "		0Ω	10568		
50	" "		0Ω	10566		
51	Ant. Choke		.5Ω	A-16A-13261		

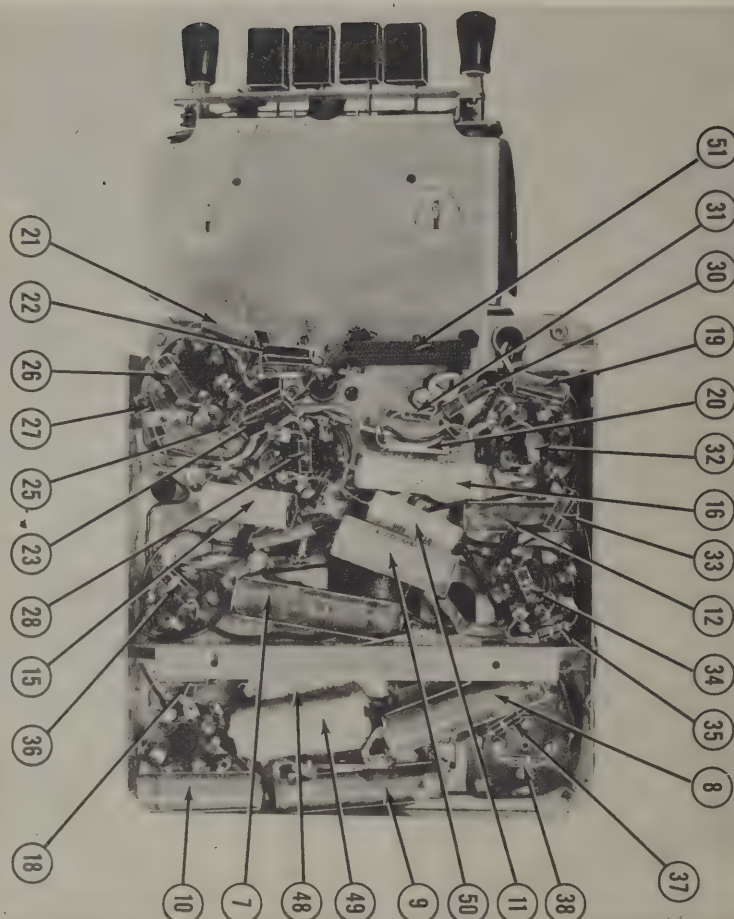
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TRUETONE PART No.		
52	Bayonet	7.5	0.20	White	10797		Type 51

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
53	Fuse	131225	SFE14
54	Spark Plate	11749B	
55	Tuning Assy.	C-211-10961	
	Dial Scale	A-6D-10740	
	Pointer	11121027	

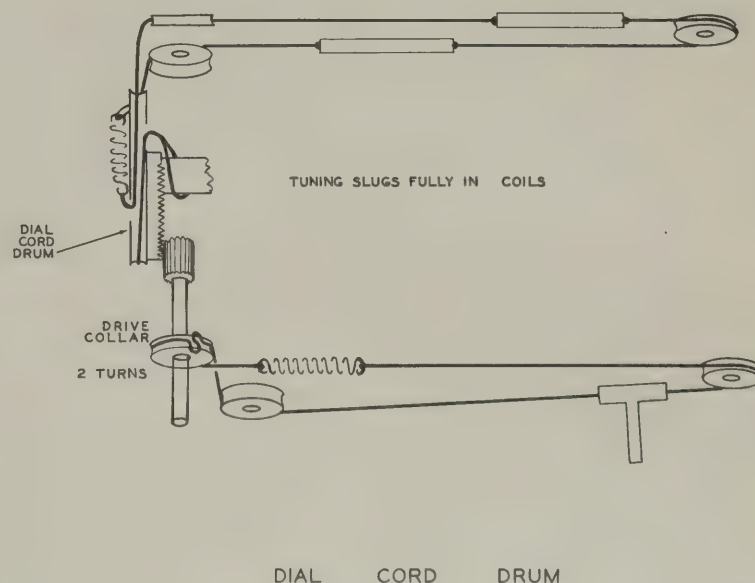
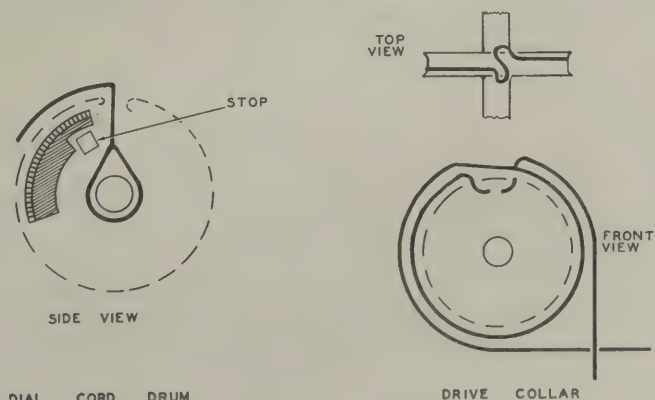
CHASSIS—BOTTOM VIEW



TRUETONE
MODEL D4620

PUSHBUTTON ADJUSTMENTS

1. Make a list of four desired stations.
2. Turn on receiver and allow to warm up for 10 to 15 minutes.
3. Remove four plastic pushbuttons by pulling out.
4. Depress left pushbutton lever and loosen locking screw accessible through hole under pushbutton.
5. Hold in pushbutton lever and tune in first desired station and tighten locking screw. This button is now set.
6. Follow same procedure for remaining buttons.
7. Replace plastic pushbuttons.



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	0V.	190VDC	80VDC	-9.4VDC§	0V.	6.1VDC	-1.1VDC
2	12SK7	0V.	0V.	0V.	-7VDC	1.3VDC	80VDC	6.1VDC	190VDC
3	12SQ7	0V.	-7VDC	0V.	-7VDC	-6VDC	90VDC	0V.	6.1VDC
4	6K6GT	0V.	6.1VDC	210VDC	190VDC	0V.	0V.	0V.	14.5VDC
5	6X5GT	0V.	6.1VDC	245VAC	0V.	245VAC	0V.	0V.	220VDC

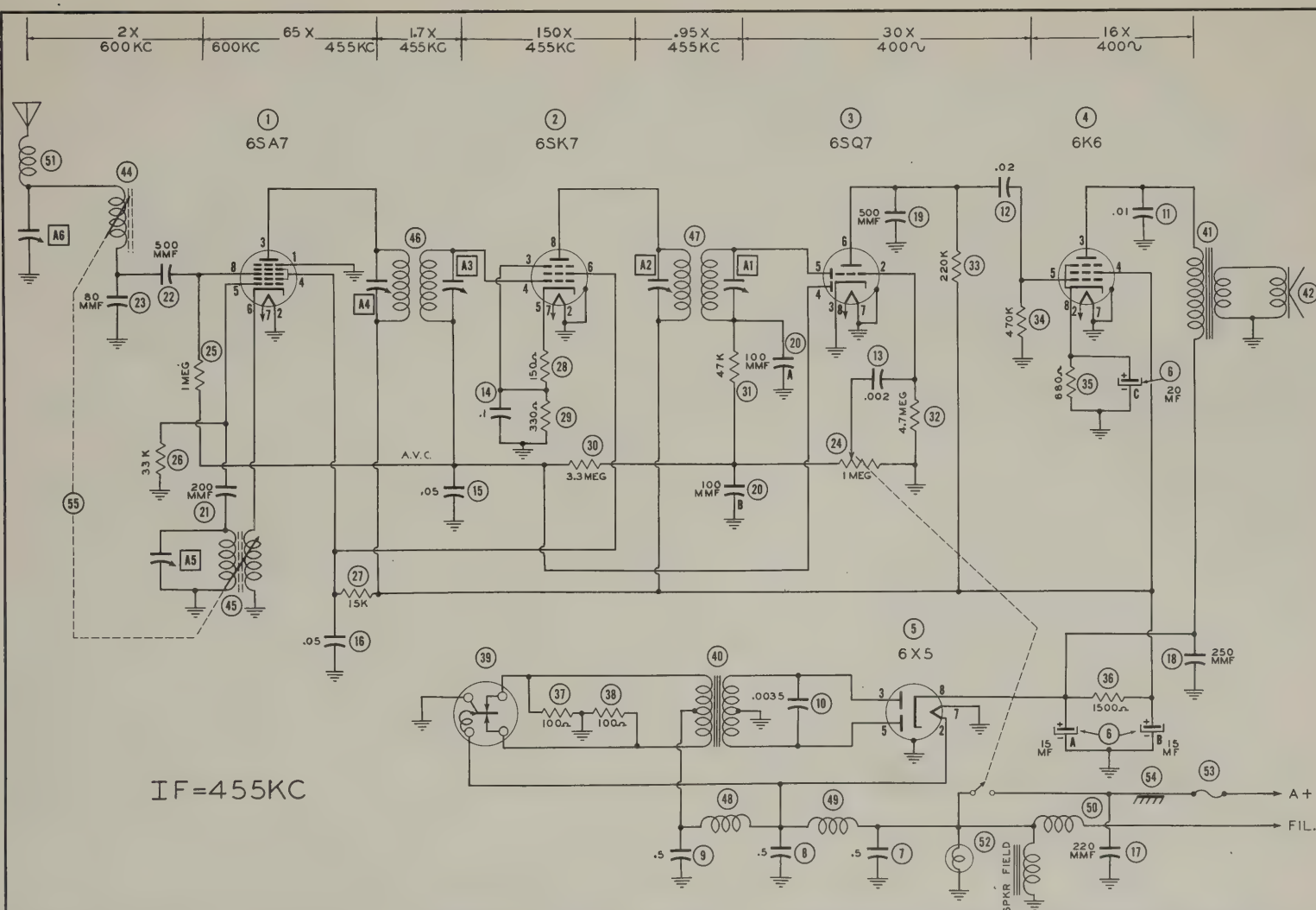
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0Ω	0Ω	50KΩ	65KΩ	35KΩ	.4Ω	.1Ω	5 Meg.
2	12SK7	0Ω	0Ω	0Ω	4 Meg.	150Ω	65KΩ	.1Ω	50KΩ
3	12SQ7	0Ω	5 Meg.	0Ω	4 Meg.	1 Meg.	270K	0Ω	.1Ω
4	6K6GT	0Ω	.1Ω	50KΩ	50KΩ	500KΩ	INF.	0Ω	680Ω
5	6X5GT	0Ω	.1Ω	210Ω	INF.	180Ω	INF.	0Ω	50KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

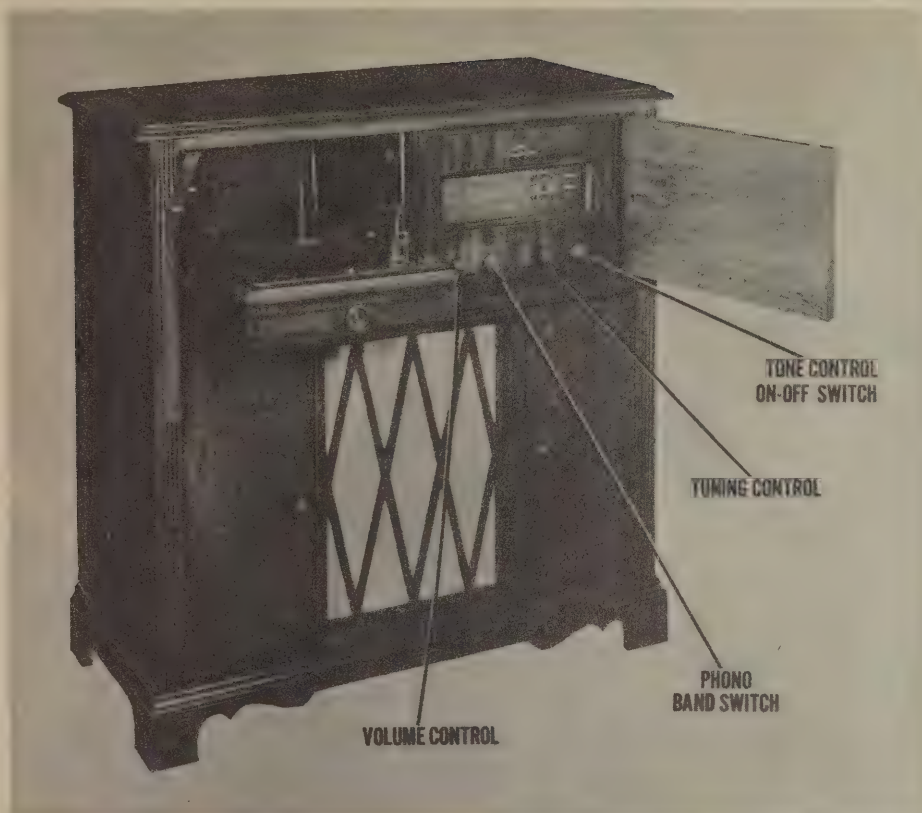
- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Battery voltage maintained at 6.3 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.



A PHOTOFACT STANDARD NOTATION SCHEMATIC
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THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 4716-28

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by connecting negative (-) 3 volts to the AVC line.



UST DUMBARTON MODEL 8-16M

TRADE NAME		U. S. Television (Dumbarton) Model 8-16M					
MANUFACTURER		U. S. Television Mfg. Co., 3 W. 61st St., New York, N.Y.					
TYPE SET		AC Operated 3 Band Radio-Phono Combination Superheterodyne Receiver					
TUBES (EIGHT)		Types, 7A7 RF Amp., 7Q7 Converter, 7A7 IF Amp., 7B6 Det.-AVC-AF, 7A4 Phase Inverter, (2) 6V6GT Power Output, 5Y3GT Rectifier.					
POWER SUPPLY		110-120 Volts AC		RATING		.770 Amp. @ 117 Volts AC	
TUNING RANGE		BROADCAST 535-1625KC		SHORT WAVE		1.57-6MC, 5.1-19MC	
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT							
To set pointer, turn tuning cap. fully closed and set pointer to left end of dial calibration lines. Volume control at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to center stator of tuning cap. Low side to chassis.	455KC	BC (fully counter-clockwise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200MMFD.	High side to terminal "A" of ant. terminal strip. Low side to chassis.	1500KC	"	1500KC	"	A5,A6, A7	" " " "
200MMFD.	"	600KC	"	600KC	"	A8	Rock tuning cap.. and adjust for maximum output. Repeat steps 2 and 3 until no further improvement can be made.
400Ω	"	5MC	SW I (1st position clockwise)	5 MC	"	A9	Adjust for maximum output.
400Ω	"	"	"	Tune for maximum output.	"	A10,A11	Rock tuning cap. and adjust for maximum output.
400Ω	"	15MC	SW II (2nd position clockwise)	15MC	"	A12	Adjust for maximum output.
400Ω	"	"	"	Tune for maximum output.	"	A13,A14	Rock tuning cap. and adjust for maximum output.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		U.S. TELEVISION PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	7A7	7A7	8V	
2	Converter	7Q7	7Q7	8V	
3	IF Amp.	7A7	7A7	8V	
4	Det.-AVC-AF	7B6	7B6	8W	
5	Phase Inverter	7A4	7A4	SAC	
6	Power Output	6VEGT	6VEGT	7AC	
7	"	6VEGT	6VEGT	7AC	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

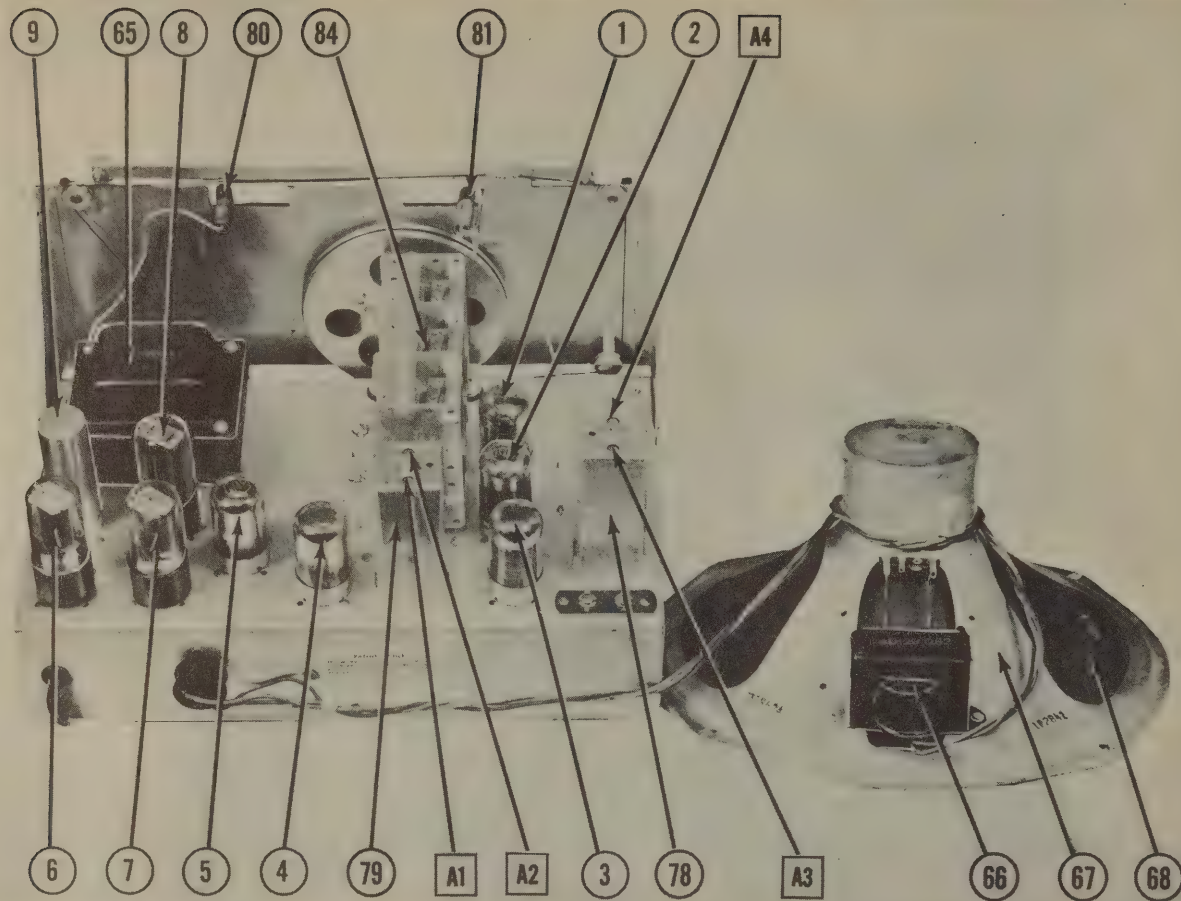
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		U. S. TELEVISION PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AERVOX PART No.	
9A	15 CAP.	PA4311-1	FB390	DY-3X15-450	EL-344	AF444J	▲ Filter
B	450 VOLT						
10	15 CAP.	PA-4386-3	TC28	M-25-25	TA-25	PRSA25-25	BR202A
11	10 CAP.	PA-4386-2	TC70	M-4-450	U1-4	PRSA450-4	BR445
12	25 CAP.	PA-4386-2	TC29	M-50-25	TA-60	PRSA25-60	BR502
13	50 CAP.	PC400H-202	TP405	S-6-002	TC-22	684-002	DT6D2
14	.002 CAP.	PC400L-503	TP426	S-4-05	TC-15	484-05	DT485
15	.05 CAP.	PC400L-503	TP426	S-4-05	TC-15	484-05	DT485
16	.05 CAP.	PC400L-503	TP426	S-4-05	TC-15	484-05	DT485
17	.05 CAP.	PC400L-503	TP426	S-4-05	TC-15	484-05	DT485
18	.02 CAP.	PC400K-203	TP423	S-4-02	TC-12	484-02	DT482
19	.05 CAP.	PC400K-503	TP426	S-4-05	TC-15	484-05	DT485
20	.05 CAP.	PC400K-503	TP426	S-4-05	TC-15	484-05	DT485
21	.05 CAP.	PC400L-503	TP426	S-4-05	TC-15	484-05	DT485
22	.05 CAP.	PC400K-503	TP426	S-4-05	TC-15	484-05	DT485
23	.05 CAP.	PC400K-503	TP426	S-4-05	TC-15	484-05	DT485
24	.05 CAP.	PC400L-503	TP426	S-4-05	TC-15	484-05	DT485
25	100 CAP.	M2600-101	M2235	M0.8-31	IFM-31	1469-0001	SW5T1
26	100 CAP.	M2600-101	M2235	M0.8-31	IFM-31	1469-0001	SW5T1
27	100 CAP.	M2600-101	M2235	M0.8-31	IFM-31	1469-0001	SW5T1
28	51 CAP.	M2600-510	M2B225	M0.5-45	IFM-45	1469-0005	SW5Q5
29	200 CAP.	M2600-201	M2B237	M0S.5-32	MS-32	1469-0002	SR5T2
30	1130 CAP.	PA-4387-1					
31	2925 CAP.	PA-4387-2					
32	500 CAP.	M260F-050	M2B205	M0S.5-55	MS-55	1469-00005	SR5V5
33	1240 CAP.	M2600-241	M2240	M0.5-325	IFM-325	1469-00025	SW5T25

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		U. S. TELEVISION PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
34A	2 Meg. B Start	PA4403	MK403	D13-139	AM-68-Z	Volume Control
35A	250K Ω B Start	PA4402	Not Req.	E	K3S-3	Attach to 35A per instructions
B	250K Ω C Switch	PA4402	Not Req.	D13-130	AM-64-Z	Tone Control
C	Switch	Not Req.	Not Req.	41	K3S-3	Attach to 35A per instructions
					SW-A	"

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued) RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	U. S. TELEVISION PART No.	IRC PART No.	
36	1 Meg.	1/2	RIS-105	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
37	52K	1/2	RIS-321	BTS-820	Gray-Red-Br. RF Cathode
38	330K	1/2	RIS-331	BW-2-330	Or.-Or.-Br. Parasitic Suppressor
39	15K	1/2	RIS-150	BW-2-15	Br.-Grn.-Blk. Parasitic Suppressor
40	20K	1/2	RIS-203	BTS-22K	Red-Blk.-Or. Oscillator Grid
41	30K	1/2	RIS-300	BW-2-33	Or.-Blk.-Blk. Parasitic Suppressor
42	30K	1/2	R45-303	BT-2-33K	Or.-Blk.-Or. Bleeder
43	50K	1/2	R45-303	BT-2-53K	Or.-Blk.-Or. Bleeder

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	OV.	270VDC	75VDC	4VDC	OV.	OV.	4VDC	6.4VAC
2	7C7	OV.	270VDC	75VDC	-6.5VDC	OV.	-1.2VDC	OV.	6.4VAC
3	7A7	OV.	270VDC	75VDC	3VDC	OV.	OV.	3VDC	6.4VAC
4	7B6	OV.	135VDC	OV.	1.1VDC	.5VDC	-1.2VDC	1.1VDC	6.4VAC
5	7A4	OV.	220VDC	OV.	OV.	OV.	35VDC	55VDC	6.4VAC
6	6V6GT	OV.	OV.	265VDC	270VDC	OV.	OV.	6.4VAC	16.5VDC
7	6V6GT	OV.	OV.	265VDC	270VDC	OV.	OV.	9.4VAC	16.5VDC
8	5Y3GT	OV.	345VDC	OV.	355VAC	OV.	355VAC	OV.	345VDC

STAKEN WITH VACUUM TUBE VOLTMETER.

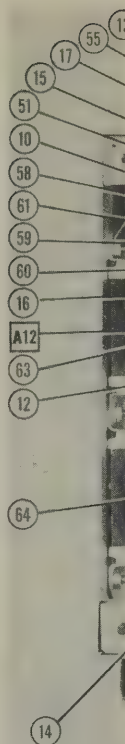
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0K	40K	23K	850K	0K	4.5 Meg.	850K	.1K
2	7C7	0K	40K	23K	20K	0K	3.5 Meg.	1.5K	.1K
3	7A7	0K	40K	23K	620K	0K	12K	620K	.1K
4	7B6	0K	300K	2 Meg.	300K	200K	3.5 Meg.	300K	.1K
5	7A4	0K	62K	INF.	INF.	INF.	540K	23K	.1K
6	6V6GT	0K	0K	40K	40K	50K	INF.	.1K	220K
7	6V6GT	0K	0K	40K	40K	50K	INF.	.1K	220K
8	5Y3GT	INF.	40K	INF.	165K	INF.	175K	INF.	40K

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

CHASSIS—BOTTOM VIEW



STAGE GAIN MEASUREMENTS

ANTENNA TO RF GRID	6.5X	600K
RF GRID TO CONV. GRID	1.5X	600K
CONVERTER GAIN	105X	IN 600K OUT 455K
INPUT IF	.4X	455K
IF TUBE	170X	455K
OUTPUT IF	.7X	455K
AUDIO	90X	400 Ω
PHASE INV.	.9X	400 Ω
OUTPUT	14X	400 Ω

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		U.S. TELEVISION PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	7A7	7A7	8V	
2	Converter	7A7	7A7	8V	
3	IF Amp.	7A7	7A7	8V	
4	Det.-AVC-AF	7B6	7B6	8W	
5	Phase Inverter	7A4	7A4	5AC	
6	Power Output	6V6GT	6V6GT	7AC	
7	"	6V6GT	6V6GT	7AC	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

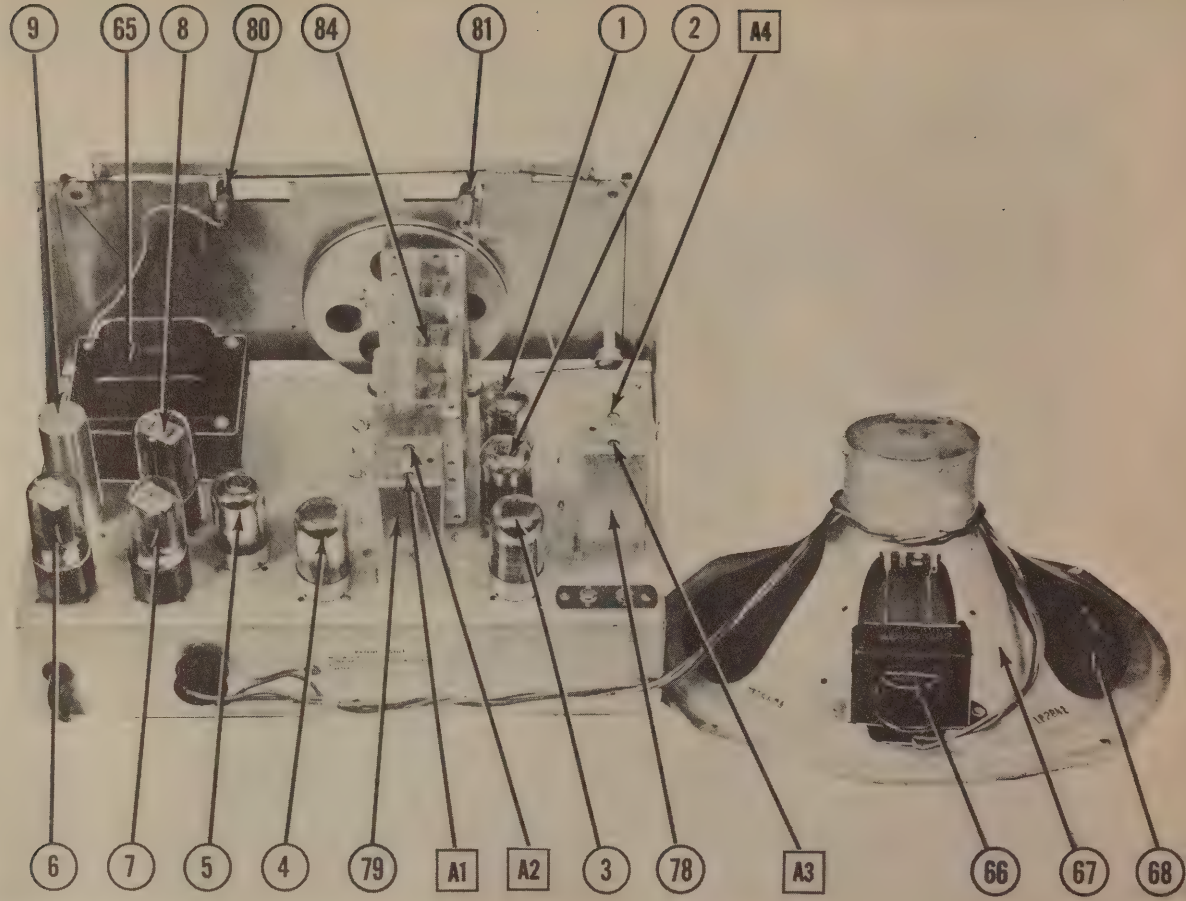
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	VOLT	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
			U. S. TELEVISION PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
9A	15	450	PA4311-1	FF390	DY-3X15-450	EL-344	AF444J
B	10	450					
C	15	450					
10	20	450					
11	25	450					
12	4	450	PA-4386-3	TC26	M-25-25	TA-25	PRSA25-25
13	50	25	PA-4386-2	TC70	M-4-450	U7-4	PRSA450-4
14	.002	25	PA-4386-1	TC29	M-50-25	TA-50	PRSA25-50
15	.05	400	PC403L-503	TP405	S-6-002	TC-22	684-002
16	.05	400	PC403L-503	TP426	S-4-05	TC-15	484-05
17	.05	400	PC403L-503	TP426	S-4-05	TC-15	484-05
18	.05	400	PC403L-503	TP426	S-4-05	TC-15	484-05
19	.05	400	PC403L-503	TP426	S-4-05	TC-15	484-05
20	.05	200	PC403K-503	TP426	S-4-05	TC-15	484-05
21	.05	200	PC403K-503	TP426	S-4-05	TC-15	484-05
22	.05	200	PC403K-503	TP426	S-4-05	TC-15	484-05
23	.05	200	PC403K-503	TP426	S-4-05	TC-15	484-05
24	.05	200	PC403K-503	TP426	S-4-05	TC-15	484-05
25	100	500	MC60G-101	MC235	M0.5-31	1FM-31	1468-0001
26	100	500	MC60G-101	MC235	M0.5-31	1FM-31	1468-0001
27	100	500	MC60G-101	MC235	M0.5-31	1FM-31	1468-0001
28	51	500	MC60F-510	MC225	M0.5-45	1FM-45	1468-0005
29	200	500	MC60G-201	MC227	M0.5-32	NS-32	1469-0002
30	1130	500	PA-4387-1				
31	2925	500	PA-4387-2				
32	5	500	MC60F-050	MC205	M0.5-55	NS-55	1469-00005
33	240	500	MC60G-241	MC240	M0.5-325	1FM-325	1468-00025

CONTROLS

ITEM No.	RATING RESISTANCE	WATTS	REPLACEMENT DATA				INSTALLATION NOTES
			U. S. TELEVISION PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
34A	2 Meg.	1/2	PA4403	MC403	D13-139	AM-66-Z	Volume Control
35A	250K Ω	1/2	PA4402	MC402	D13-130	KSS-3	Attach to 34A per instructions
B	250K Ω	1/2	PA4402	MC402	D13-130	AM-64-Z	Tone Control
C	Switch					KSS-3	Attach to 35A per instructions

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	U. S. TELEVISION PART No.	IRC PART No.	
36	1 Meg.		R1S-100	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
37	2.2K		R1S-51	BTS-820	Gray-Red-Br. RF Cathode
38	3.3K		R1S-51	EW-1-330	Or.-Or.-Br. Parasitic Suppressor
39	15K		R1S-150	EW-1-15	Br.-Grn.-Blk. Parasitic Suppressor
40	20K		R1S-100	BTS-22K	Red-Blk.-Or. Oscillator Grid
41	30K		R1S-300	EW-1-33	Or.-Blk.-Blk. Parasitic Suppressor
42	3.3K		R1S-330	BT-2-33K	Or.-Blk.-Or. Bleeder
43	3.3K		R1S-330	BT-2-33K	Or.-Blk.-Or. Bleeder
44	22K		R1S-22K	DTA-22K	Red-Red-Or.
45	30K		R1S-300	EW-1-330	Or.-Blk.-Br.
46	50K		R1S-500	BTS-680	Blue-Red-Br. IF Cathode
47	15K		R1S-150	BTS-15K	Br.-Gray-Or. Diode Filter
48	3.3 Meg.		R1S-335	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
49	5.3 Meg.		R1S-335	BTS-3.3 Meg.	Or.-Or.-Grn.
50	330K		R1S-334	BTS-330K	Or.-Or.-Yl. Series Volume Control
51	1 Meg.		R1S-105	BTS-1 Meg.	Br.-Blk.-Grn. Series Phono
52	68K		R1S-68K	BTS-68K	Blue-Gray-Or. Phono Shunt
53	150K		R1S-150K	BTS-150K	Br.-Gray-Yl. Diode Load
54	27K		R1S-27K	BTS-270K	Red-Yl.-Yl. AF Plate Load
55	470K		R1S-474	BTS-470K	Yl.-Yl.-Yl. Phase Inverter Grid
56	22K		R1S-22K	BTS-22K	Red-Red-Or. Phase Inverter Cathode
57	270K		R1S-272	BTS-2700	Red-Yl.-Red Phase Inverter Cathode
58	22K		R1S-22K	BTS-22K	Red-Red-Or. Phase Inverter Plate Load
59	47K		R1S-47K	BTS-47K	Yl.-Yl.-Or. Output Grid
60	47K		R1S-47K	BTS-47K	Yl.-Yl.-Or. Output Grid
61	2.2K		R1S-22K	BTS-22K	Red-Red-Or. Output Cathode
62	50K		R1S-500	AB-500	Filter

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	U. S. TELEVISION PART No.	STANCOR PART No.	
63	.110A	140Ω	PA-7353	C-2303†	†Drill new mounting holes.
64	.110A	140Ω	PA-7353	C-2303†	

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	SEC. 3	U. S. TELEVISION PART No.	STANCOR PART No.	THORDARSON PART No.
65	117V AC	71V CT	5.1V AC	5.4V AC	PC-67000-60	P-6013	T22R05
66	.77A	.110A	2.5A	2.5A	PC-67000-60	P-6013	T22R05

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI.	SEC.	U. S. TELEVISION PART No.	STANCOR PART No.	THORDARSON PART No.	
67	12000	4.0Ω	420V CT	.25Ω	PC-63000-8	A-2312	T22S55	*Drill one new mounting hole
68	8 CT				PC-63000-8	A-2312	T22S55	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	U. S. TELEVISION PART No.	JENSEN PART No.	
69	PM	4.0Ω	PC63000-8	ST-1-11	*Replace output transformer to match 6Ω voice coil.
70	CONE DIA.	VC DIA.	PC63000-8	ST-1-11	
71	11"	1"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.	

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	U. S. TELEVISION PART No.	MEISSNER PART No.
69	BC Ant. Coil	19Ω	4.5Ω	AB-42230	14-1026
70	Pol. " "	4.5Ω	1.8Ω	AB-42233	14-1041
71	SW Ant. Coil	.5Ω	0Ω	AB-42236	14-1044
72	BC RF Coil	2.5Ω	4.5Ω	AB-42231	14-1027
73	Pol. RF Coil	.3Ω	1.5Ω	AB-42234	14-1042
74	SW RF Coil	.8Ω	0Ω	AB-42237	14-1045
75	BC Osc. Coil	1.5Ω	7.5Ω	AB-42232	14-1040
76	Pol. Osc. " "	.5Ω	2Ω	AB-42235	14-1043
77	SW Osc. Coil	.3Ω	0Ω	AB-42238	14-1046
78	Input IF	12.5Ω	12Ω	AB-42216-1	16-6658
79	Output IF	6.5Ω	6.5Ω	AB-42216-2	16-6660

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					U. S. TELEVISION PART No.		
80	Bayonet	6-8	0.15	Brown			Type 47
81	"	"	"	"			

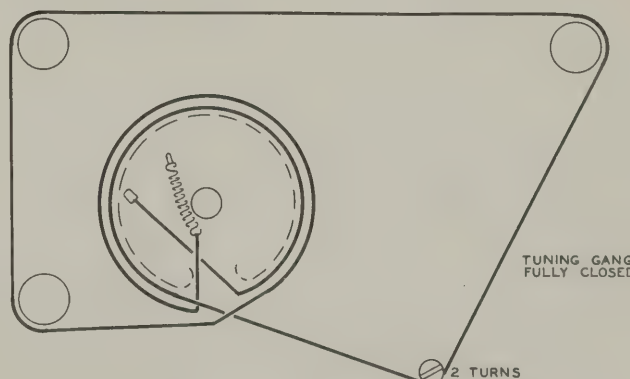
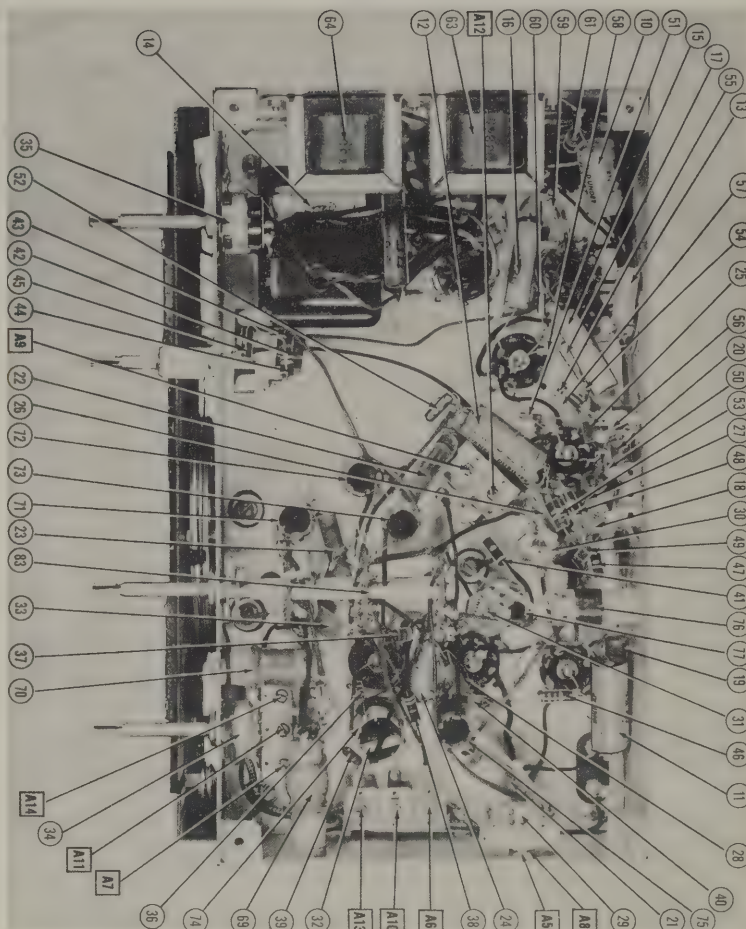
PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA		REMARKS
	UST PART No.	ASTATIC PART No.	
82		L-70	

MISCELLANEOUS

ITEM No.	PART NAME	U. S. TELEVISION PART No.	NOTES
83	Bandswitch	FB-40400	13-460 MMF (each section)
84	3 Gang Var. Cap.	PA-4370	BC Osc. Adj.
85	Dual Trimmer	PA-4374-2	BC Osc. Padder
86			BC RF Adj.
87	Trimmer Strip	PA-4374-1	SW #1 RF Adj.
88			SW #2 RF Adj.
89	Trimmer Strip	PA-4375-1	BC Ant. Adj.
90			SW #1 Ant. Adj.
91			SW #2 Ant. Adj.
92	Dual Trimmer	PA-4375-1	SW #1 Osc. Adj.
93			SW #2 Osc. Adj.

CHASSIS—BOTTOM VIEW



DIAL CORD DRIVE

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION. VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0V.	270VDC	75VDC	4VDC	0V.	0V.	4VDC	6.4VAC
2	7Q7	0V.	270VDC	75VDC	-6.5VDC	0V.	-1.2VDC	0V.	6.4VAC
3	7A7	0V.	270VDC	75VDC	3VDC	0V.	0V.	3VDC	6.4VAC
4	7B6	0V.	135VDC	0V.	1.1VDC	.5VDC	-1.2VDC	1.1VDC	6.4VAC
5	7A4	0V.	220VDC	0V.	0V.	0V.	35VDC	55VDC	6.4VAC
6	6V6GT	0V.	0V.	265VDC	270VDC	0V.	0V.	6.4VAC	16.5VDC
7	6V6GT	0V.	0V.	265VDC	270VDC	0V.	0V.	6.4VAC	16.5VDC
8	5Y3GT	0V.	345VDC	0V.	355VAC	0V.	355VAC	0V.	345VDC

STAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

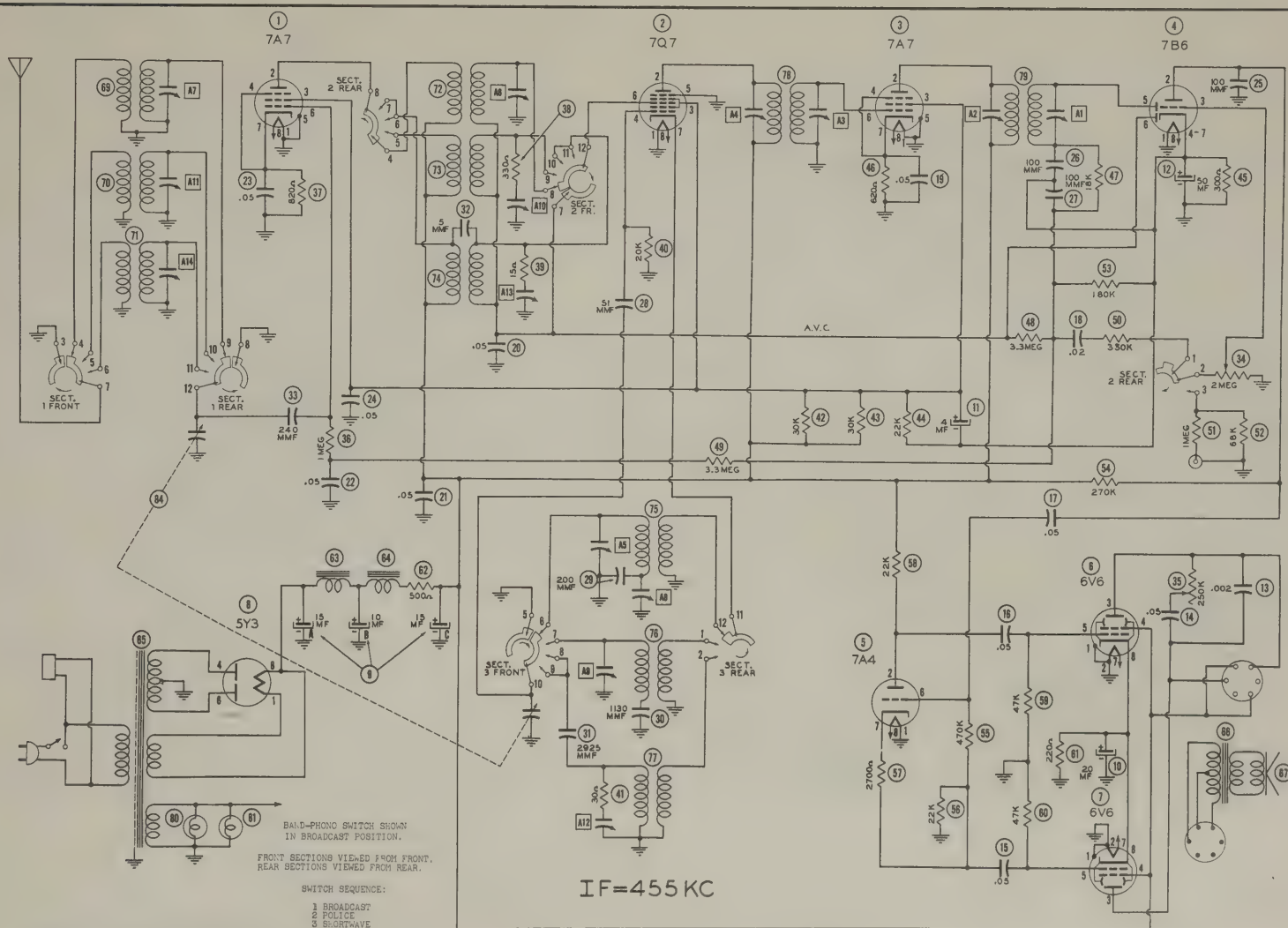
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0Ω	40KΩ	23KΩ	850Ω	0Ω	4.5 Meg.	850Ω	.1Ω
2	7Q7	0Ω	40KΩ	23KΩ	20KΩ	0Ω	3.5 Meg.	1.5Ω	.1Ω
3	7A7	0Ω	40KΩ	23KΩ	620Ω	0Ω	12Ω	620Ω	.1Ω
4	7B6	0Ω	300KΩ	2 Meg.	300Ω	200KΩ	3.5 Meg.	300Ω	.1Ω
5	7A4	0Ω	62KΩ	INF.	INF.	INF.	540KΩ	23KΩ	.1Ω
6	6V6GT	0Ω	0Ω	40KΩ	40KΩ	50KΩ	INF.	.1Ω	220Ω
7	6V6GT	0Ω	0Ω	40KΩ	40KΩ	50KΩ	INF.	.1Ω	220Ω
8	5Y3GT	INF.	40KΩ	INF.	165Ω	INF.	175Ω	INF.	40KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

STAGE GAIN MEASUREMENTS

ANTENNA TO RF GRID	6.5X	600KC
RF GRID TO CONV. GRID	1.5X	600KC
CONVERTER GAIN	105X	IN 600KC OUT 455KC
INPUT IF	.4X	455KC
IF TUBE	170X	455KC
OUTPUT IF	.7X	455KC
AUDIO	90X	400~
PHASE INV.	.9X	400~
OUTPUT	14X	400~



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

PHOTOFACT* Folder

SILVERTONE MODEL 7153 (Ch.109.627)

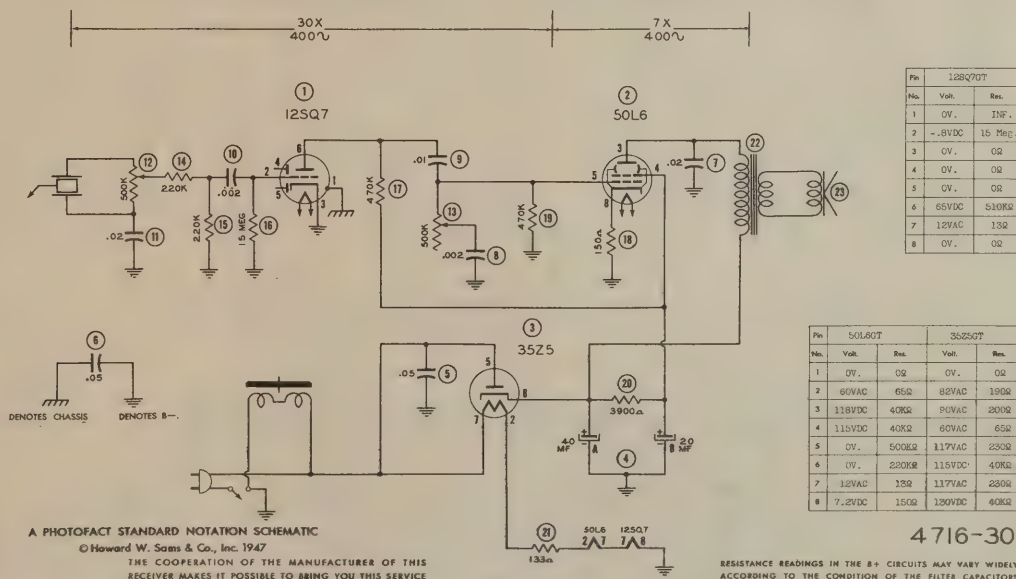
SILVERTONE MODEL 7153 (Ch.109.627)



SILVERTONE MODEL 7153

TRADE NAME Silvertone, Model 7153 (Ch. 109.627)
SUPPLIER Sear, Roebuck & Co., 925 S. Homan St., Chicago, Ill.
TYPE SET AC Operated Automatic Phonograph with 3 Tube Amplifier & Speaker
TUBES (THREE) Types, 12SQ7GT AF Amp., 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY 105-125 Volts AC **RATING** .170 Amp. @ 117 Volts AC

SILVERTONE MODEL 7153 (Ch.109.627)



1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS
TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SILVERTONE PART No.	STANDARD REPLACEMENT		
1	AF Amp.	125Q7GT	3Q	7AC	
2	Power Output	50L6GT	5AD		
3	Rectifier	35Z5GT			

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		SILVERTONE PART No.	MALLORY PART No.	SOLAR PART No.	
4A	CAP. VOLTS	D-A-6943	FP211	DY-4020-150	■ Filter
B	40				
5	150				
6	.05	D-BD410503	TP426	MPH-4-05	DT455
7	.05	D-BD410503	TP426	S-4-05	DT455
8	.02	D-BD410203	TP423	S-4-02	DT452
9	.002	D-BD610203	TP405	S-6-002	DT6D2
10	.01	D-BD410103	TP421	S-4-01	DT451
11	.002	D-BD610203	TP405	S-6-002	DT6D2
	.02	D-BD410203	TP423	S-4-02	DT452

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		SILVERTONE PART No.	MALLORY PART No.	CLAROSTAT PART No.	
12	RESIST. ANCE WATTS	D-B-54468-1			Volume Control
13	500KΩ	D-B-54466-1			

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		SILVERTONE PART No.	IRC PART No.		
14	220KΩ	D-BR17B224	BTS-220K		Red-Red-VI. Tone Compensation
15	220KΩ	D-BR17B224	BTS-220K		Red-Red-VI. Tone Compensation
16	15 Meg.	D-BR17B156	BTS-15 Meg.		Br.-Grn.-Blue AF Grid
17	470KΩ	D-BR17B474	BTS-470K		VI.-VI.-VI. AF Plate Load
18	150Ω	D-BR16E151	BW-1-150		Br.-Grn.-Br. Output Cathode
19	470KΩ	D-BR17B474	BTS-470K		VI.-VI.-VI. Output Grid
20	390KΩ	D-BR16C392	BTS-390K		Or.-White-Red Filter
21	133Ω	D-A-9528	ABA-150		Line Dropping-See Note

Note-On IRC replacement set slider at 133Ω from one end.

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		SILVERTONE PART No.	STANCOR PART No.	THORDARIN PART No.	
22	IMPEDANCE DC RES. PRI. SEC. PRI. SEC.				
	2250Ω 3.5Ω 255Ω .7Ω	B-51578-2	A-3876	T22845	A-2928

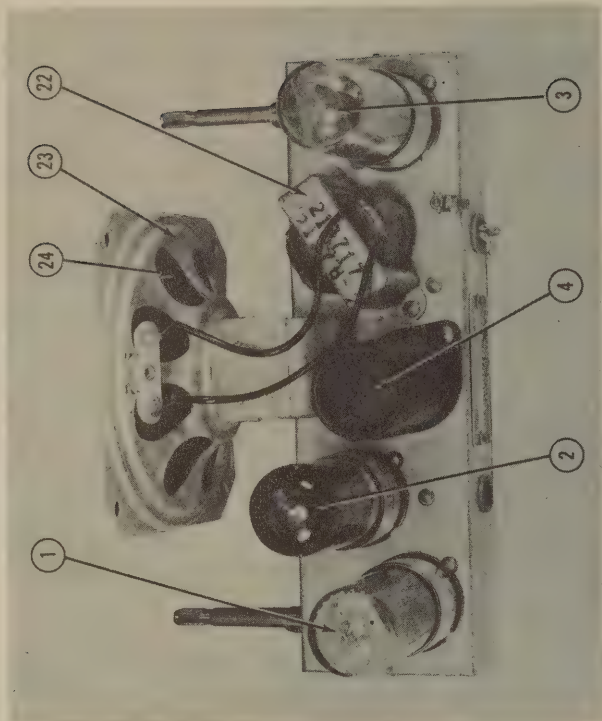
SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA			INSTALLATION NOTES
		SILVERTONE PART No.	JENSEN PART No.		
23	FIELD PM COIL DIA. VC IMP. 3.5Ω	Q-56026	SP-113*		*Drill and tap magnet frame.
24	4" 1/2"		Mod. P4-X		
NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT					

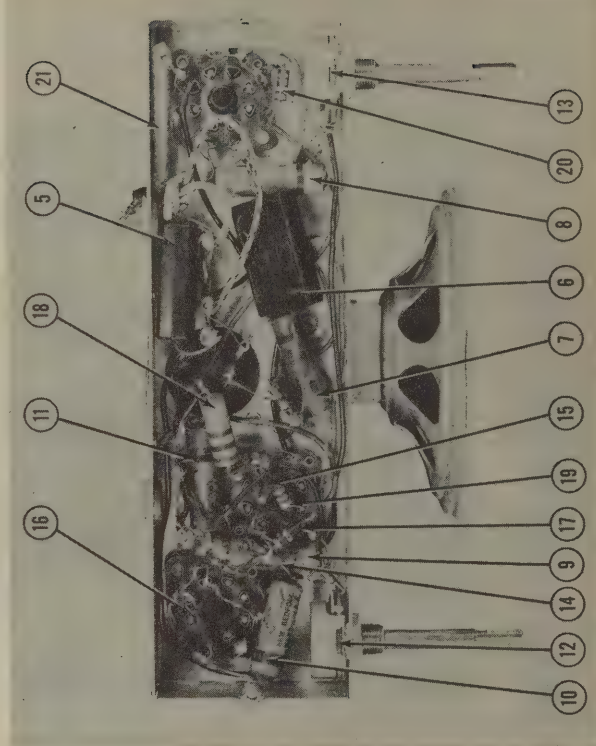
PHONO CARTRIDGE

REPLACEMENT DATA		REMARKS
ITEM No.	SILVERTONE PART No.	
25	R52826	L-70

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





FRONT VIEW

GENERAL INFORMATION

This changer is designed to play automatically up to twelve 10-inch or ten 12-inch records at one loading. The last record is repeated until the changer is turned off. Manual playing of records is accomplished by use of the "on-off" switch between

records.

There are several models which look similar. The Model RC150 may be identified by removing the record support cover assembly and noting the adjusting screws (7A).

Manufactured by ADMIRAL CORPORATION, 3800 Cortland Street, Chicago, Illinois

The Model RC150 Was Used Only in the Following Models:

5RP47 with serial numbers under 406,000

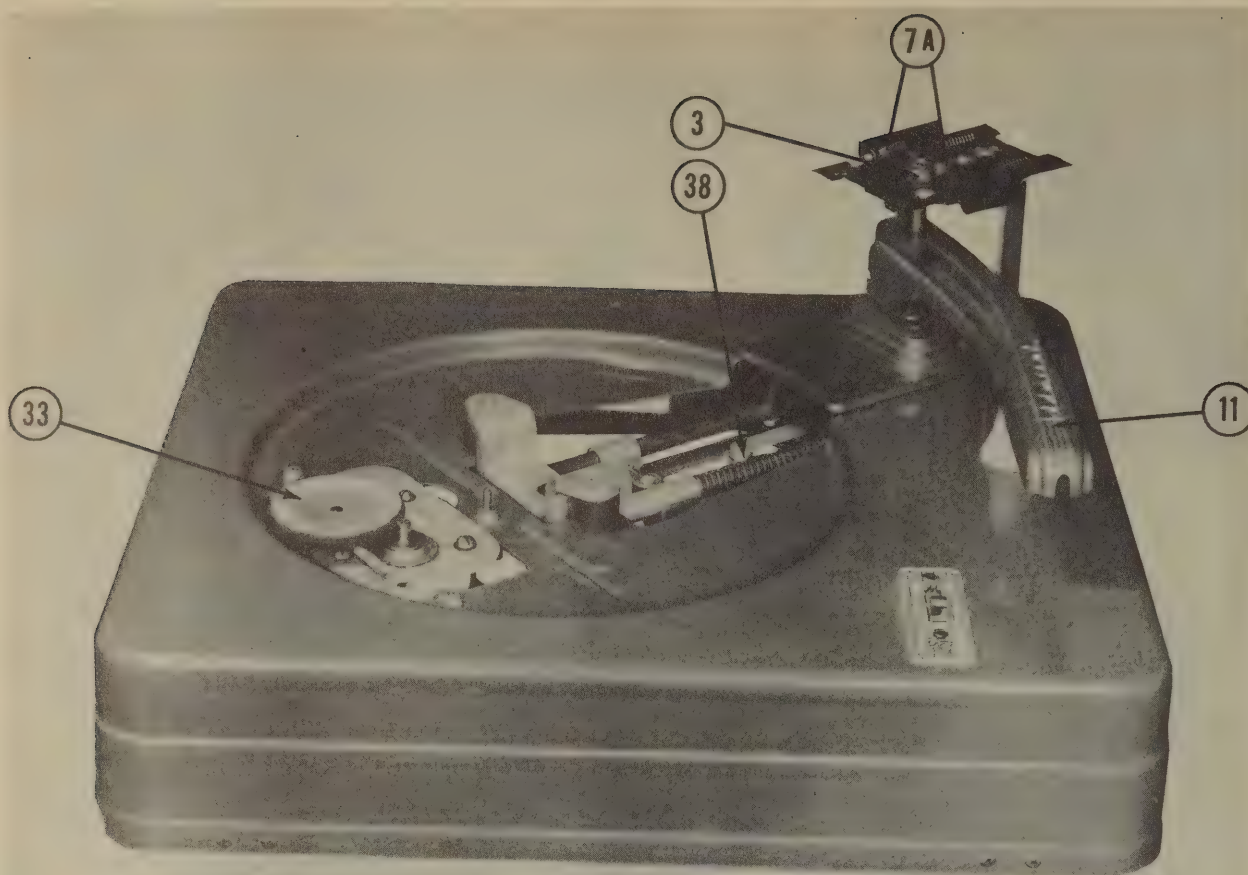
6RC46 with serial numbers under 300,000

6RT42-5B1 with serial numbers under 350,000

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TOP VIEW PARTIALLY DISASSEMBLED

THE CHANGE CYCLE

The pickup arm (11) is connected to the retaining roller (38) through the trip linkage assembly (35, 36). As the pickup arm moves toward the center of the record, it gradually withdraws the retaining roller from its position where it holds the eccentric cam (49) in the between-cycle position.

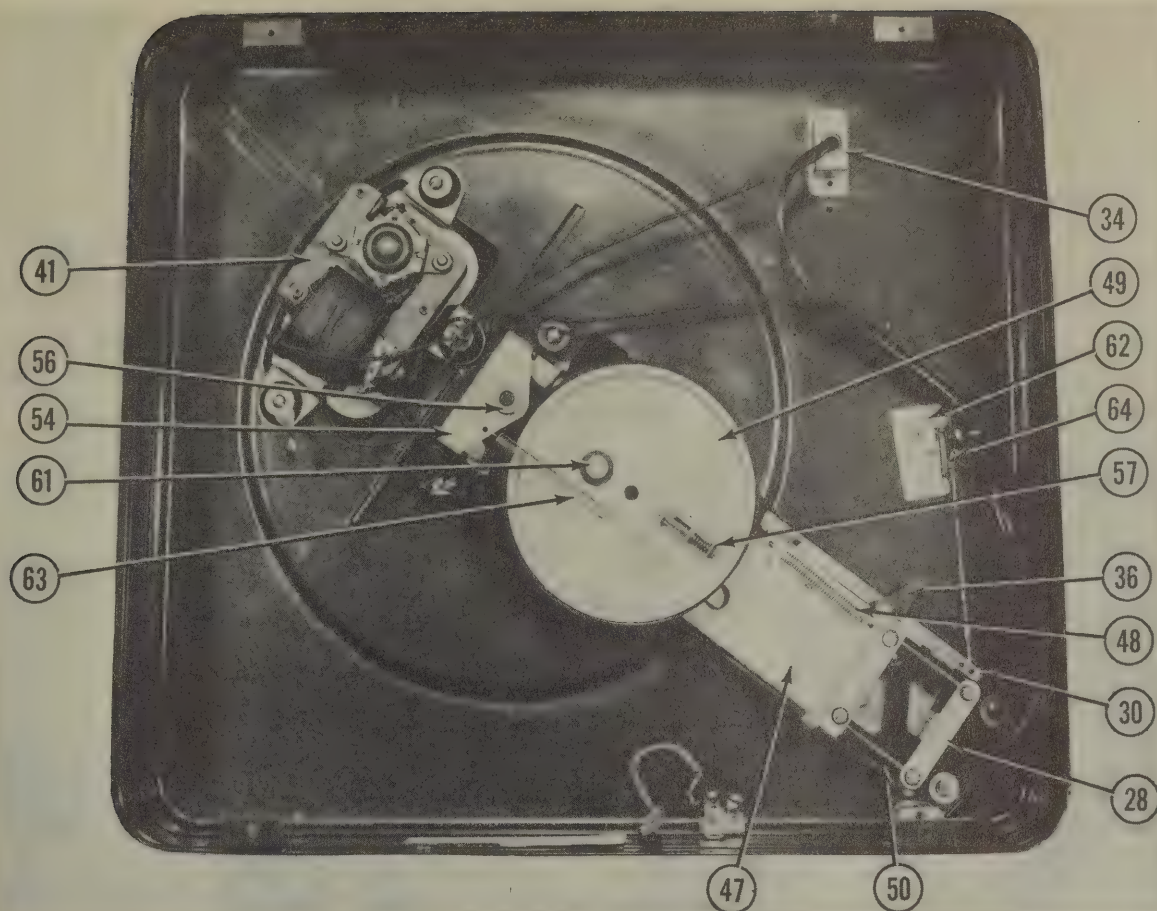
The withdrawal of the retaining roller allows the eccentric cam to contact the knurled roller (52), which is turned by the turntable (21) through the turntable shaft (21A). This moves the riser plate assembly (47) away from the centerpost along the guide rods (50), pushing the lower lift rod (12A) up as its inclined surface passes under the rod. The lower lift rod raises the pickup arm from the record by means of the pickup arm lift adjustment screw (15).

The motion bracket (47A) pushes the stop arm (36) away from the centerpost and thus moves the pickup arm clear of the edge of the records. It also rotates the guide pin assembly (18) which rotates the push-off cam (3) by means of the upper lift rod and guide plate assembly (12). The push-off cam, which has also been raised by the lift rods, is then in line with the set-down point adjustment screw (7A). As the push-off cam rotates, it pushes against the adjustment screw and moves the push plate (part of 7) toward the centerpost, thus dropping the bottom record of the stack to the turntable. The push plate springs return the push plate to its normal position and in doing so rotate the push-off cam, moving the pickup arm to its set-down point and

returning the trip linkage assembly (35) to its normal position.

The eccentric cam has now completed one-half revolution and starts to allow the riser plate assembly (47) to reverse its direction of travel along the guide rods toward the centerpost. As the riser plate, propelled by the recoil spring (39), moves toward the centerpost, it allows the lift rod (12A) to lower to its normal position and, in doing so, lowers the pickup arm to the record. The eccentric cam completes its revolution and moves away from the knurled roller (52), since its support (46) is prevented from further travel by the guide rod ferrule. The cam is prevented from further rotation since its stop bracket comes to rest against retaining lever roller (38). The cycle is now complete.

To play the first record of a stack, or to reject a record, the reject button (25) must be pressed. This moves the reject lever assembly (62) and pulls the coupling wire, tripping the reject trigger (30). This allows the reject spring (27) to pull the reject slide (28A) forward, carrying with it the stop arm (36) of the trip linkage assembly. The retaining lever then pulls the retaining lever roller (38) away from the eccentric cam stop (49B) allowing the eccentric cam (49) to contact the knurled roller (52) and start a cycle exactly as upon the completion of a record. As this cycle takes place, the riser plate motion bracket (47A) returns the reject slide (28A) to its normal position held in place by the reject trigger (30).



BOTTOM VIEW

ADJUSTMENTS

Pickup Arm Set-Down Point

Separate screws (7A) are provided for adjustment of the 10-inch and 12-inch pickup arm set-down points. The adjustment nearest the centerpost is the adjustment screw for that position of the record shelf.

Adjustment is made by loosening the locknut and turning counterclockwise to move the set-down point toward the centerpost, or clockwise to move the point away from centerpost.

Pickup Arm Lift

The knurled, spring-loaded screw (15) is provided for pickup arm lift adjustment. Turning the screw clockwise lowers the lift and turning it counterclockwise raises the lift. Correct adjustment allows the pickup arm to clear bottom of the unplayed record stack without the pickup needle striking the top record of a full stack on the turntable.

Trip Point

The tripping point, or beginning of a change cycle on the completion of a record, is adjusted by the tripping point adjustment screw (57). Turning the screw clockwise delays the tripping while turning it counterclockwise advances the tripping.

Correct adjustment allows tripping when the pickup needle is $1\frac{5}{8}$ " from the side of the centerpost.

Record Separation

The function of the record separation latch (16A) is to prevent more than one record from dropping to the turntable at one time. If it does not function properly, the centerpost is probably bent. Correct adjustment allows $1/32$ to $1/16$ inch clearance between the edge of a record and the end of the record slide push plate.

In bending the centerpost for adjustment, care should be taken to prevent breakage at the shoulder. All pressure should be applied below the shoulder.

Push-Off Cam

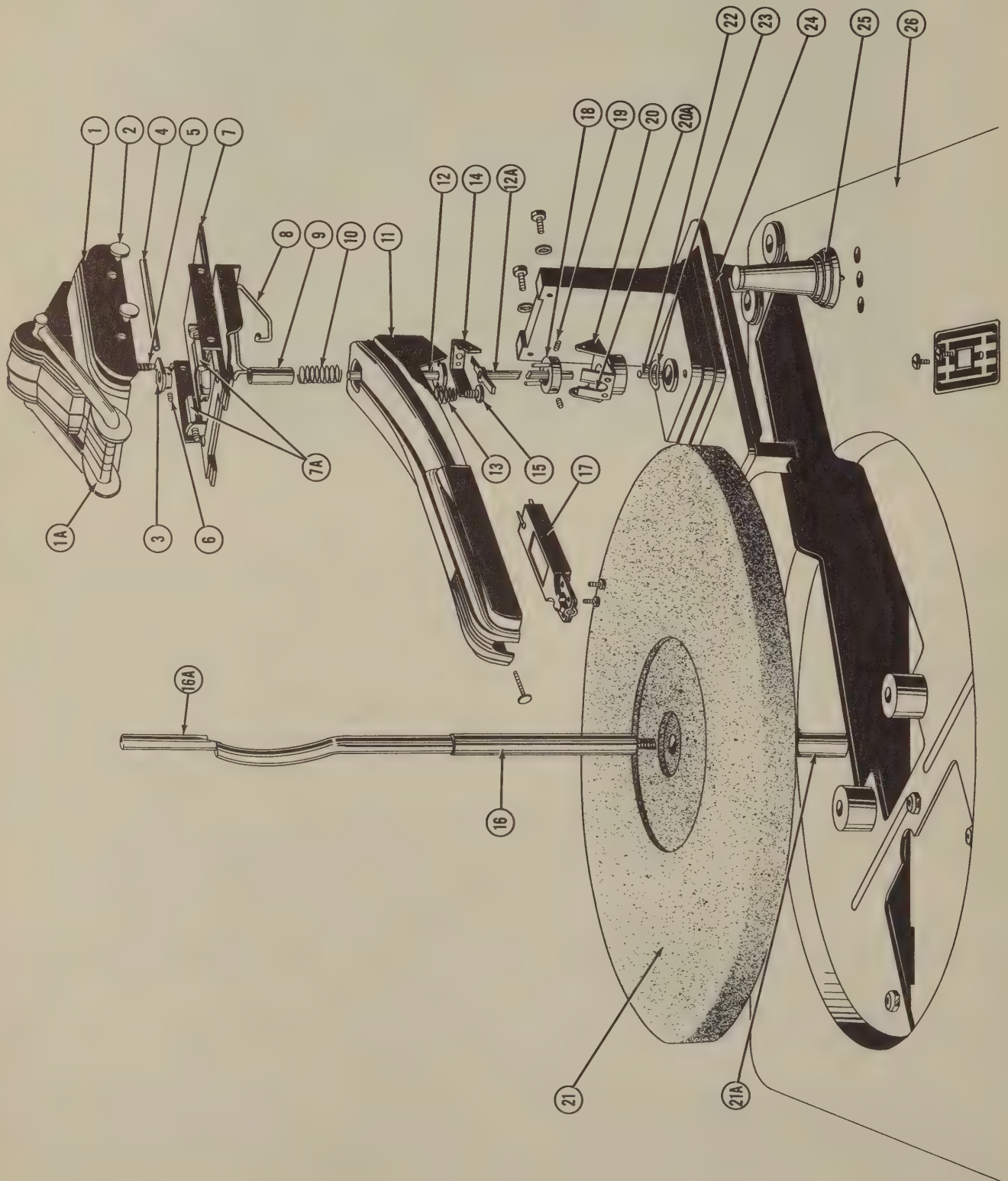
This should be necessary only if the cam has been removed or loosened:

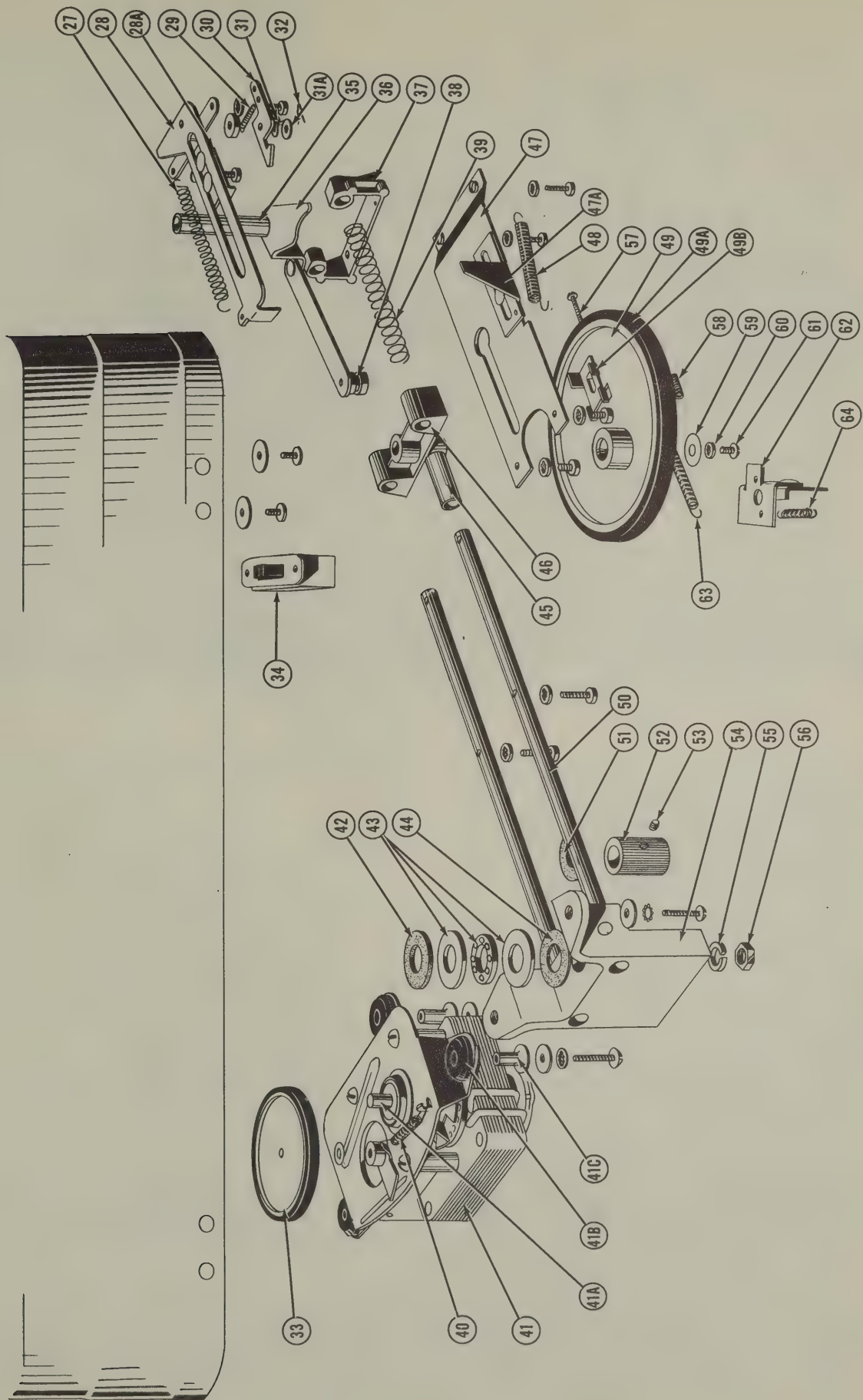
1. Loosen both set screws (6) using No. 6 Bristol wrench.
2. Set the record support for 12-inch records.
3. Place a 12-inch record in playing position on the turntable.
4. Move the pickup arm toward the centerpost to actuate the trip.
5. Turn the turntable, by hand, in its normal direction until the arm lifts and moves outward to a point where the needle is directly over the point on the edge of the record at which it would set down at the beginning of the next playing. Be sure that the pickup arm has been stopped when it is moving *AWAY* from the centerpost.
6. Set the point of the cam (3) in light contact with and slightly below the center of the 12-inch set-down adjustment screw (7A).
7. Tighten both set screws.
8. Check set-down points for both 10- and 12-inch records and readjust, if necessary.

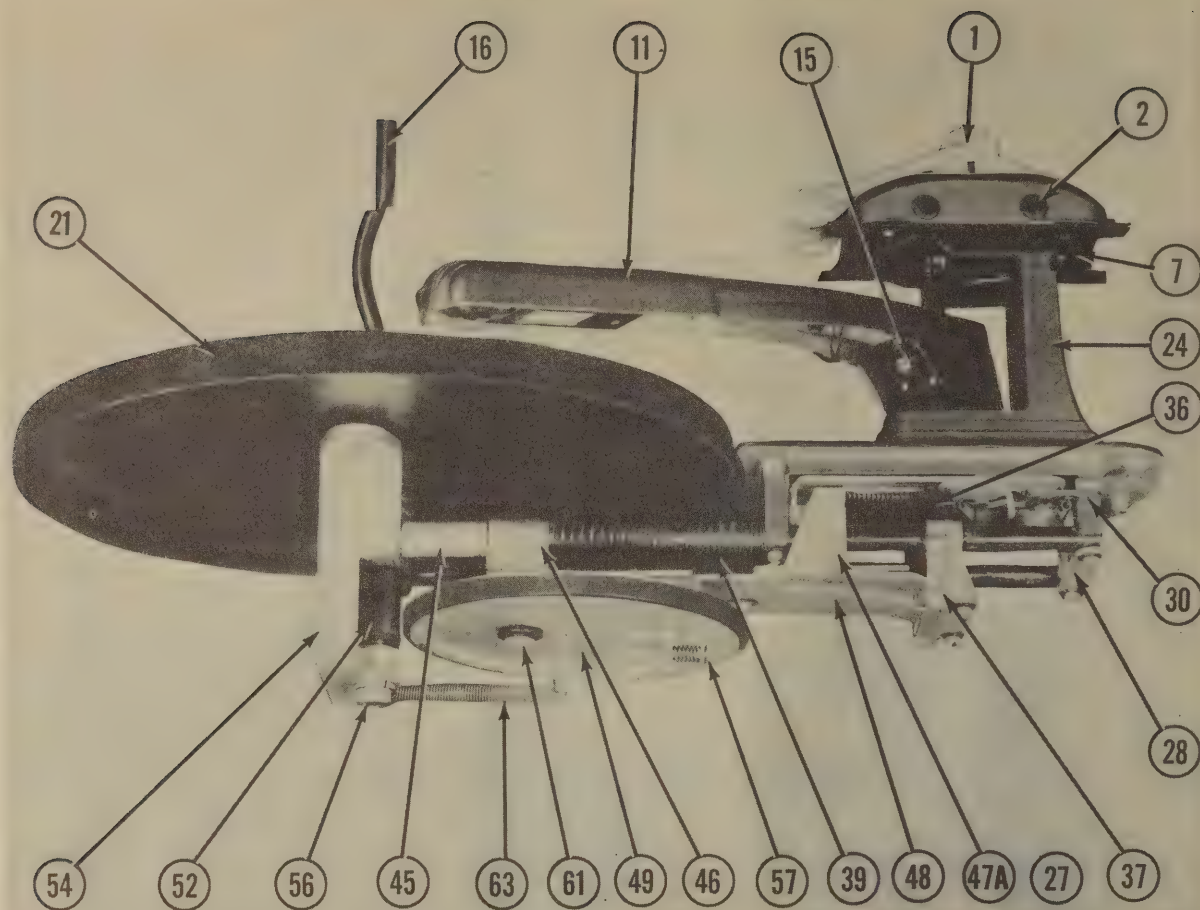
Guide Pin Assembly

This should be necessary only if the assembly has been removed or loosened:

1. If head assembly and pickup arm have not been removed, it will now be necessary to do so. The pickup arm is removed by prying the pivot spring (14) away from the pins on the lift guide assembly (20).







CHANGE MECHANISM—FRONT VIEW

2. Press reject button.
3. Turn turntable, by hand, in its normal direction until the riser plate assembly (47) has reached its maximum travel.
4. Continue to turn the turntable for about $\frac{1}{2}$ additional revolution to allow the riser plate to return about $\frac{1}{32}$ " or less. Hold the turntable to prevent further movement.
5. Push the stop arm (36) against the motion bracket (47A) on the riser plate and upward toward the base.
6. Turn the lift guide assembly (20) counterclockwise until it is against the stop pin (22).
7. Rotate the guide pin assembly (18) counterclockwise, as far as possible, until it strikes against the lower lift rod assembly (12A).
8. Hold these positions, including that of the stop arm (36), as described above.
9. Press down on the guide pin assembly (18) in order to hold the lift guide assembly (20) tightly against the base (24).
10. Tighten the set screws (19).

To Remove Turntable

Before the turntable can be removed, it is first necessary to remove the centerpost. This is done by removing the centerpost nut (56) and lock washer (55). The knurled roller (52) is then loosened from the turntable shaft (21A) by loosening

the set screw (53). This allows the turntable to be removed by pulling upward with a rotary motion.

Lubrication

Use SAE No. 10 motor oil on the following points:

- A—Motor bearings.
- B—Turntable bearing, if type having sleeve-bearing insert.

Use Sta-Put No. 512 on the following points:

- A—Turntable bearing, if type without sleeve-bearing insert.
- B—All points of frictional contact.

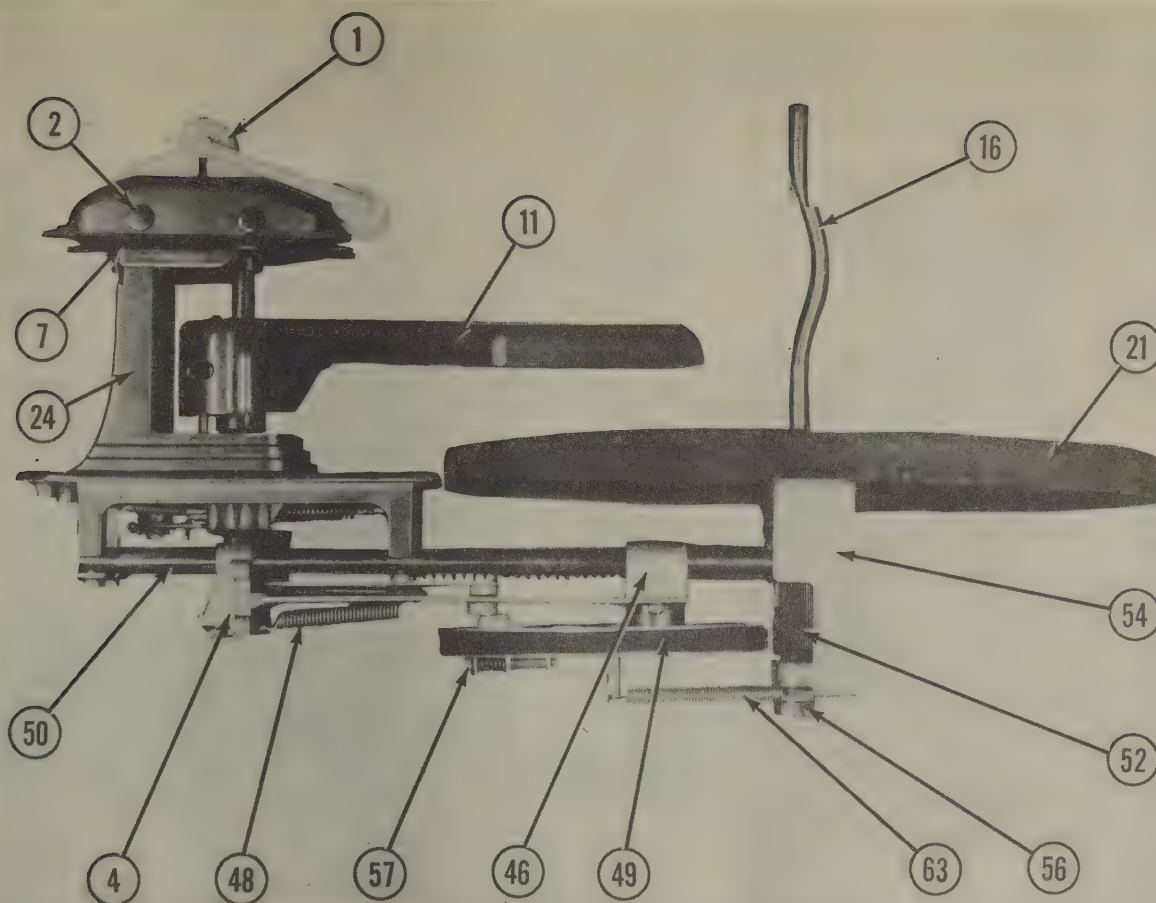
Do not lubricate tone-arm bearing or lift rods (12, 12A). Be careful that no lubricant reaches the idler wheel tire or the eccentric cam tire.

Motor Replacement

Three different types of motors have been used in this changer. It will be noted from the parts list that each type requires its own associated mountings, idler wheel, etc. This is further clarified in the following table:

Motor (41)	Idler Wheel (33)	Idler Wheel (40) Spring	Rubber Grommet (41B)	Grommet Spacer (41C)	Drive Pulley (41A)
407B3	G400A23	405A14	406A4	401A53	401A48
407B1	G400A57	405A35	406A9	402A44	None
407B2	G400A59	405A36	406A10	402A45	None

Identification of the different motors is made by the part number which is stamped on the motor frame.



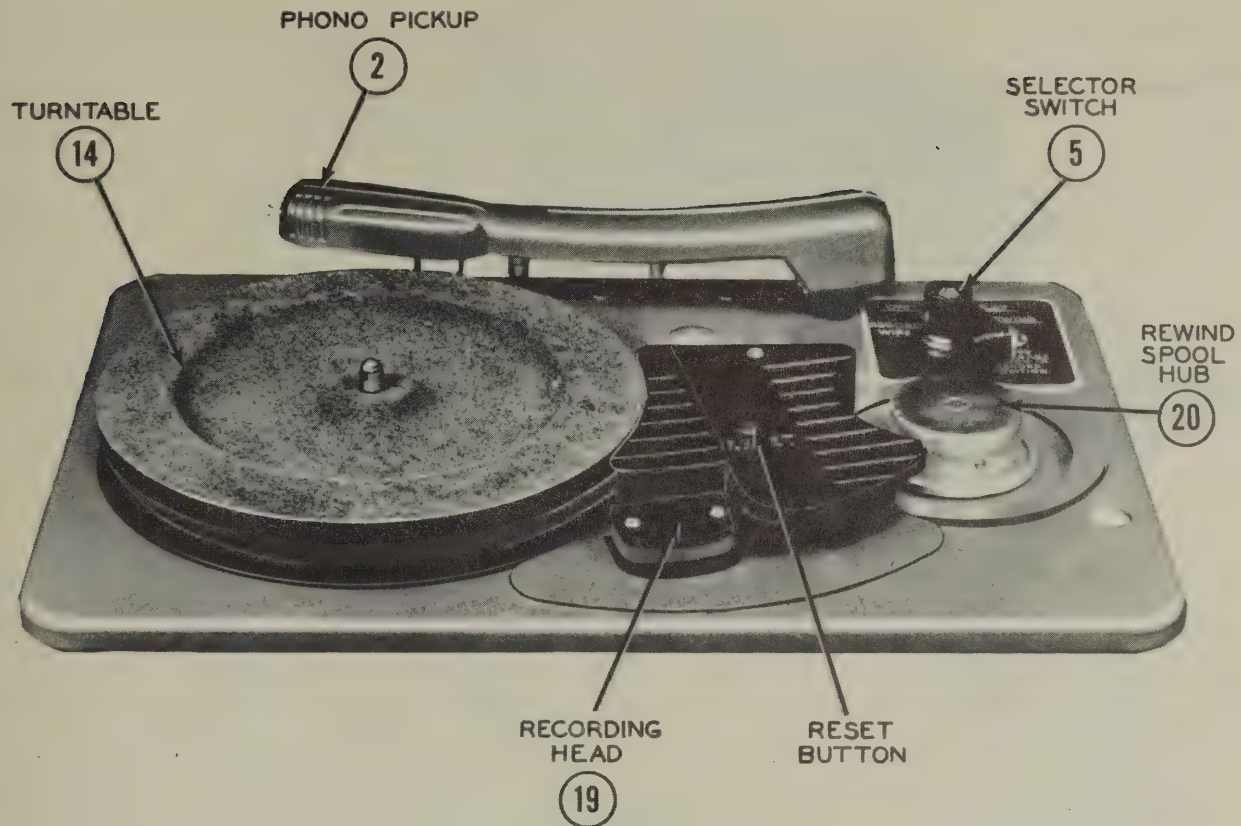
CHANGE MECHANISM—REAR VIEW

TROUBLES

1. Turntable does not turn:
 - (a) Check idler wheel position.
 - (b) Check motor.
 - (c) Check for burrs on turntable shaft.
 - (d) Check idler wheel mounting plate and spring.
 - (e) Check for bent motor mounting plate.
2. Both 10- and 12-inch pickup arm set-down points erratic:
 - (a) Check for weak push plate springs (part of 7) indicated by play in head assembly between cycles.
 - (b) Check for loose push-off cam (3). If necessary, tighten as described under "Adjustments."
 - (c) Check for loose guide pin assembly (18). If necessary, tighten as described under "Adjustments."
3. Changer starts to cycle when record support is turned for record size change:
 - (a) Check for interference between the push-off cam (3) and the set-down adjustment screw. They should not touch except during a cycle. It may be necessary to bend the screw upward and readjust for set-down position.
4. Changer continues to cycle without playing records:
 - (a) Check adjustment of the trip point screw. This adjustment may be advanced so far as to make the eccentric cam stop bracket (49B) ineffective. See instructions under "Adjustments."
5. Changer will not cycle:
 - (a) Check the eccentric cam (49) to see if it contacts the knurled roller (52) when the retaining roller releases the cam. Failure to do so may be caused by broken or stretched cam spring (63) or by tightening at cam pivot.
 - (b) Check to see if set screw (53) in knurled roller (52) has become loose allowing roller to slip on turntable shaft (21A).
 - (c) Check adjustment of trip point adjustment screw (57). This adjustment may be screwed in so far that a standard record will not trip the mechanism. See instructions under "Adjustments."
6. Bottom record of unplayed stack fails to drop to turntable:
 - (a) Check record clip (1A) for position and spring tension.
 - (b) Check record for warped condition.
 - (c) Check centerpost for bent condition.
 - (d) Check for loose push-off cam (3).
7. Pickup arm setdown point differs for cycle started by end of record from cycle started by reject button (25):
 - (a) Check latch spring (20A). The left leg of this spring should engage the lip of the guide plate (part of 12).
 - (b) Check push-off cam (3) for looseness or improper setting. See instructions under "Adjustments."
 - (c) Check guide pin assembly (18) for looseness or improper setting. See instructions under "Adjustments."
8. Pickup arm remains at rest position after cycle has begun:
 - (a) Check for loose screws in push-off cam (3). See instructions under "Adjustments."
 - (b) Check guide plate (part of 12). This plate is brazed to the upper lift pin (12) and may come loose if brazing is defective.
9. Twelve-inch adjustment point differs with cover assembly off and on:
 - (a) Check 12-inch set-down point adjustment screw (7A) for interference with cover. It may be necessary to file end of screw to gain clearance.

PARTS LIST

Ref. No.	Part No.	DESCRIPTION	Ref. No.	Part No.	DESCRIPTION
1	G400AB-B	Cover assembly (includes 1A, 4 and 4A)	36		Stop arm (part of 35)
1A		Record clip (part of 1)	37	404A-1	Riser plate support
2	13A1-4-57	Snap button for cover	38		Roller, retaining lever (part of 35)
3	G400A31	Push-off cam	39	405A9	Spring, recoil
4	414A4	Spring rod (record clip)		405A14	Spring, idler wheel for motor 407B3 only
5	405A4	Spring, record clip	40	405A35	Spring, idler wheel for motor 407B1 only
6	1A44-38	Cam set screw (Bristol hd., No. 6-32 x 3/16")		405A36	Spring, idler wheel for motor 407B2 only
7	G400B51	Head assembly (includes 8)	41	407B3	Motor, 105-125 volts, 60 cycle (motors 407B1 and 407B2 are interchangeable with 407B3)
8	405B18	Spring, head mounting plate	41A	401A48	Drive pulley (part of 41) for motor 407B3 only
9	402A40	Spacer, upper lift rod		406A4	Rubber grommet (motor mounting) for motor 407B3
10	405A20	Spring, upper lift rod	41B	406A9	Rubber grommet (motor mounting) for motor 407B1
11	G400A62	Pickup arm		406A10	Rubber grommet (motor mounting) for motor 407B2
12	G400A35	Upper lift rod and guide plate		401A53	Spacer, grommet, for motor 407B3
12A	G400A34	Lower lift rod assembly	41C	402A44	Spacer, grommet, for motor 407B1
13	405A29	Lock spring, pickup arm lift adjustment		402A45	Spacer, grommet, for motor 407B2
14	405A2	Pivot spring	42	412A1	Cork washer, 3/32" thick
15	402A17	Pickup arm lift adjustment screw	43	415A2	Thrust bearing; replace as unit
16	G400A12	Centerpost	44	412A9	Cork washer 3/64" thick
16A		Record separation latch (part of 16)	45	401A27	Ferrule, guide rod stop
17	409A3 } 409A2 } 409A1 }	Pickup cartridge	46	404A3	Support, eccentric cam
18	G400A32	Guide pin assembly	47	G400A9	Riser plate assembly
19	1A44-38	Guide pin assembly set screw (Bristol hd. No. 6-32 x 3/16")	47A		Riser plate motion bracket (part of 47)
20	G400A10	Lift guide and latch spring assembly	48	405A7	Spring, safety
20A		Latch spring (part of 20)	49	G400A45	Eccentric cam (with tire)
21	G400B49	Turntable and shaft assembly	49A	406A1	Rubber tire, eccentric cam (part of 49)
21A		Turntable shaft (part of 21)	49B	401A58	Stop bracket
22		Stop pin (part of 24)	50		Guide rods
23		Guide assembly washer	51	412A1	Cork washer (3/32" thick)
24	G400A64	Pickup arm base	52	402A5	Knurled roller, turntable shaft (two lengths used—29/32" and 31/32". Omit cork washer, item 51, when using 31/32")
25	G400A46-1	Reject housing assembly (for metal base)	53	1A44-13	Set screw for 52 (Bristol No. 8-32 x 1/8")
	G400A46-2	Reject housing assembly (for wood or plastic base)	54	G400B56	Turntable mounting and guide assembly
26		Base (metal illustrated)	55		Lockwasher, centerpost
27	405A23	Spring, reject slide	56	402A41	Hex nut, centerpost (1/4"-20)
28	G400A54	Reject bracket and slide assembly	57	60-1125-C2-21	Trip point adjustment screw (R.H.M.S. No. 6-32 x 1 1/8")
29	405A24	Spring, reject trigger	58	405A10	Spring, stop bracket
30	401A70	Reject trigger	59	4B1-57-47	Flat washer, eccentric cam
31	405A22	Spring washer, reject trigger	60		Lock washer, eccentric cam
31A	4B7 68-47	Flat washer, reject trigger	61	84-250-C2-21	Screw, eccentric cam (R.H.M.S. No. 8-32 x 1/4")
32	405A15	Hairpin spring, reject trigger	62	G400A61	Reject lever assembly
	G400A23	Idler wheel assembly for motor 407B3 only	63	405A8	Spring, eccentric cam
33	G400A57	Idler wheel assembly for motor 407B1 only	64	405A25	Spring, reject lever
	G400A59	Idler wheel assembly for motor 407B2 only	65		Reject trigger coupling wire
34	77A1-15	Switch, on-off			
35	G400A4	Trip linkage assembly. (Some early models were furnished with a flat washer; omit washer only if new part installed.)			



TOP VIEW

GENERAL INFORMATION

The Model 771 wire recorder is designed to record sound magnetically on a moving wire. The standard spool contains approximately 7,500 feet of wire, which is sufficient for over an hour of continuous recording at the standard wire speed of two feet per second. The recordings may be played back immediately after the wire has been rewound. A recording will last indefinitely, since the playback process has no effect on the wire; or new recordings may be made on an old spool, since in the recording process any previous recording is erased. The take up spool for wire recording is made in the form of a turntable and a standard crystal phonograph pickup is included so the same unit serves both as a wire recorder and a standard record player.

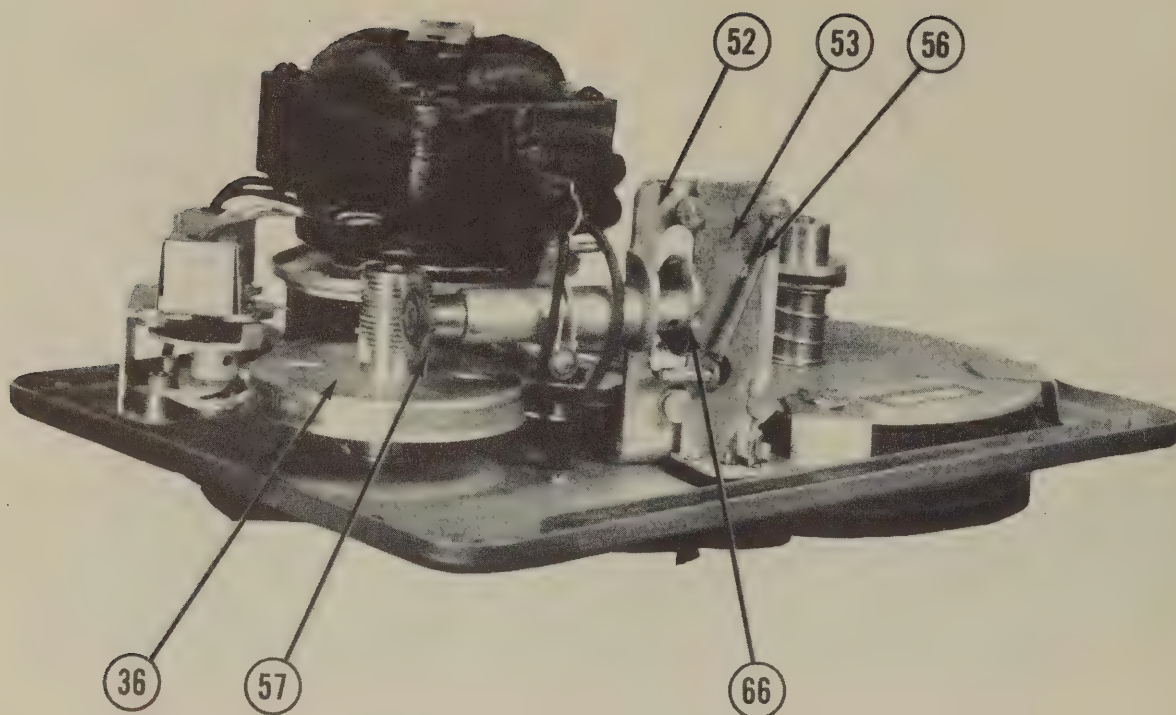
Manufactured by: SEARS ROEBUCK & CO., 925 S. Homan St., Chicago, Ill.

Parts should be ordered from the nearest Sears retail store or mail order branch.

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RIGHT FRONT VIEW

OPERATION

Proper placing of the wire on the machine is very important, as "wows" may result from improper procedure.

1. Press the "Reset" button.
2. Before placing the wire on the mechanism, the recording head should be brought to its top position. This may be done by turning the selector switch knob to "Rewind."
3. Place the spool, label side up, over the spool hub (20) and press on the spool until it is firmly seated. The slot on the spool should not be lined up with the ball on the side of the spool hub.
4. Loosen the end of the tape leader from the spool and carefully pull it past the recorder head (19). Place the leader in the channel in the rim of the turntable. While holding the leader against the inner edge of the channel, rotate the turntable until two complete turns of wire are in the channel. The full length of the leader must be pressed against the inner surface of the channel or speed variations will result.

If the turntable does not rotate when the control is turned to "play" or "record" the "Reset" button should be checked.

When changing the position of the selector switch, the lever should be snapped quickly from one position to the other. It is not necessary or advisable to touch the wire at any time.

MECHANICAL ALIGNMENT

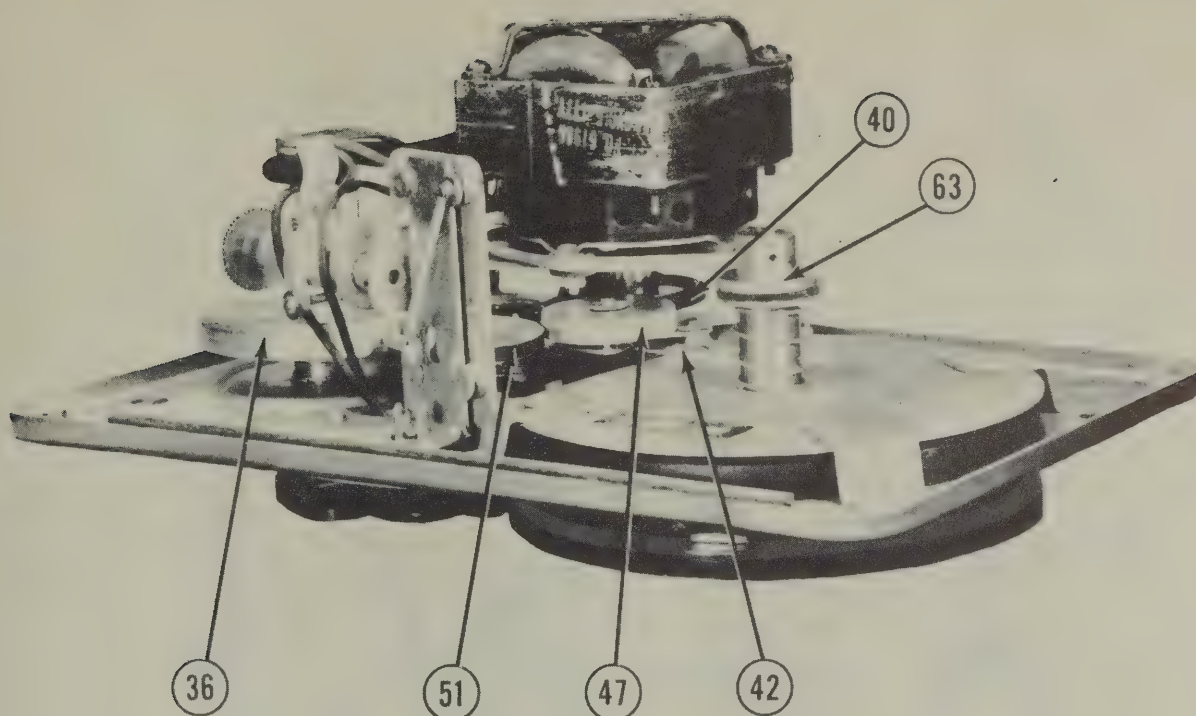
The following mechanical alignment should be performed in the order given as the accuracy of some adjustments is dependent on preceding adjustments.

Rewind Spindle Assembly

1. Remove the knurled thumb screw (20A).
2. Lift off the rewind spool (20B).
3. Loosen the set screws (46) in the pulley assembly (36).
4. Place a .010" feeler gauge between the thrust washer near the top of the rewind shaft (20C), and the end of the bearing on the motor board.
5. Holding the top end of the rewind shaft against the feeler gauge, push the rewind pulley assembly (36) until all end play is removed.
6. After the set screws have been retightened, the feeler gauge may be removed and the rewind spool and knurled screw replaced.

Turntable Assembly

1. Loosen the set screws in the spring support (63).
2. Push the felt washer (35), keyed washer (34), and spring (33) away from the spring support.
3. Place a .010" feeler gauge between the spring support and the end of the bearing.



LEFT FRONT VIEW

4. Push the spring support and the turntable together until all end play is removed.

5. After retightening the set screws the feeler gauge may be removed and the spring and washers allowed to return to their normal positions.

Rewind Pulley Train

Check the metal pulley (47) for end play. Excessive end play may be removed by shimming with extra washers (50). To remove the pulley, proceed as follows:

1. Place the selector switch knob in "play" position.
2. Remove the spring clip and pulley (51) from the link assembly (48).
3. The metal pulley may now be swung out and removed.

Check the link assembly (48) for end play on the shaft on the motor board. If end play is excessive, proceed as follows:

1. Remove the spring clip (49).
2. Remove the link assembly (48) from the shaft.
3. Shim with washers (50) until end play is removed when the spring clip is replaced.

Check the idler pulley (51) for end play on the shaft of the link assembly (48). Excessive play may be removed by shimming with washers (50).

Place the selector switch lever in "play" position. Check the clearance between pulleys (47) and (51)

with a $5/64$ " gauge. The clearance may be adjusted by loosening the screws (44) in the stop (42) and adjusting the stop.

Noise in the rewind pulley assembly may be cured by greasing with Marfak "O."

Motor Adjustment

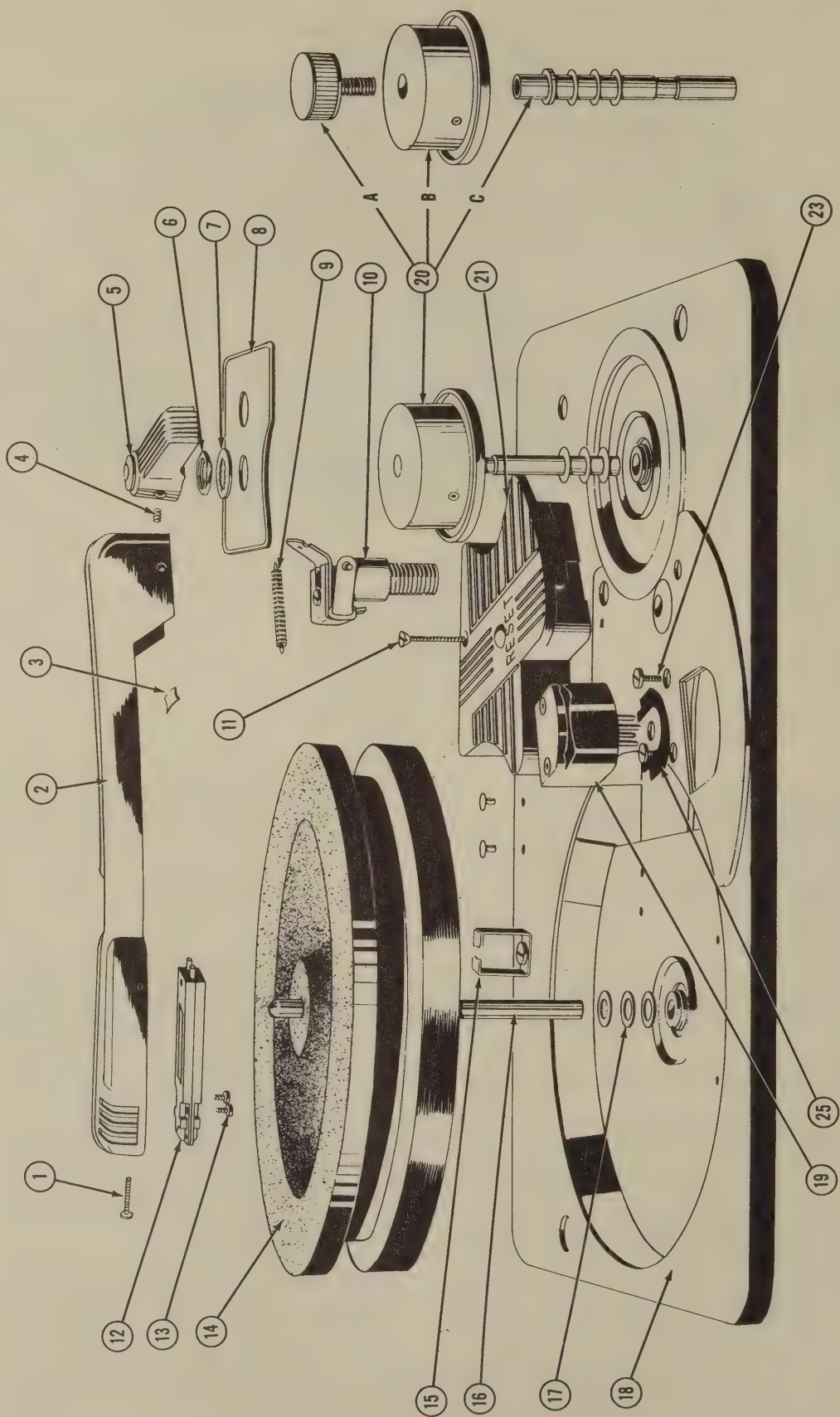
With the selector switch in "play" position, loosen the screws (65) in the motor mounting plate and adjust the motor for a clearance of approximately $5/64$ " between the motor drive pulley (40) and the metal pulley (47). Retighten the screws. Turn the selector switch to "rewind" position and check the clearance between the rim of the turntable and the idler pulley (29). The turntable and idler pulley should not touch when the idler pulley assembly is pushed lightly away from the turntable. The clearance is not critical.

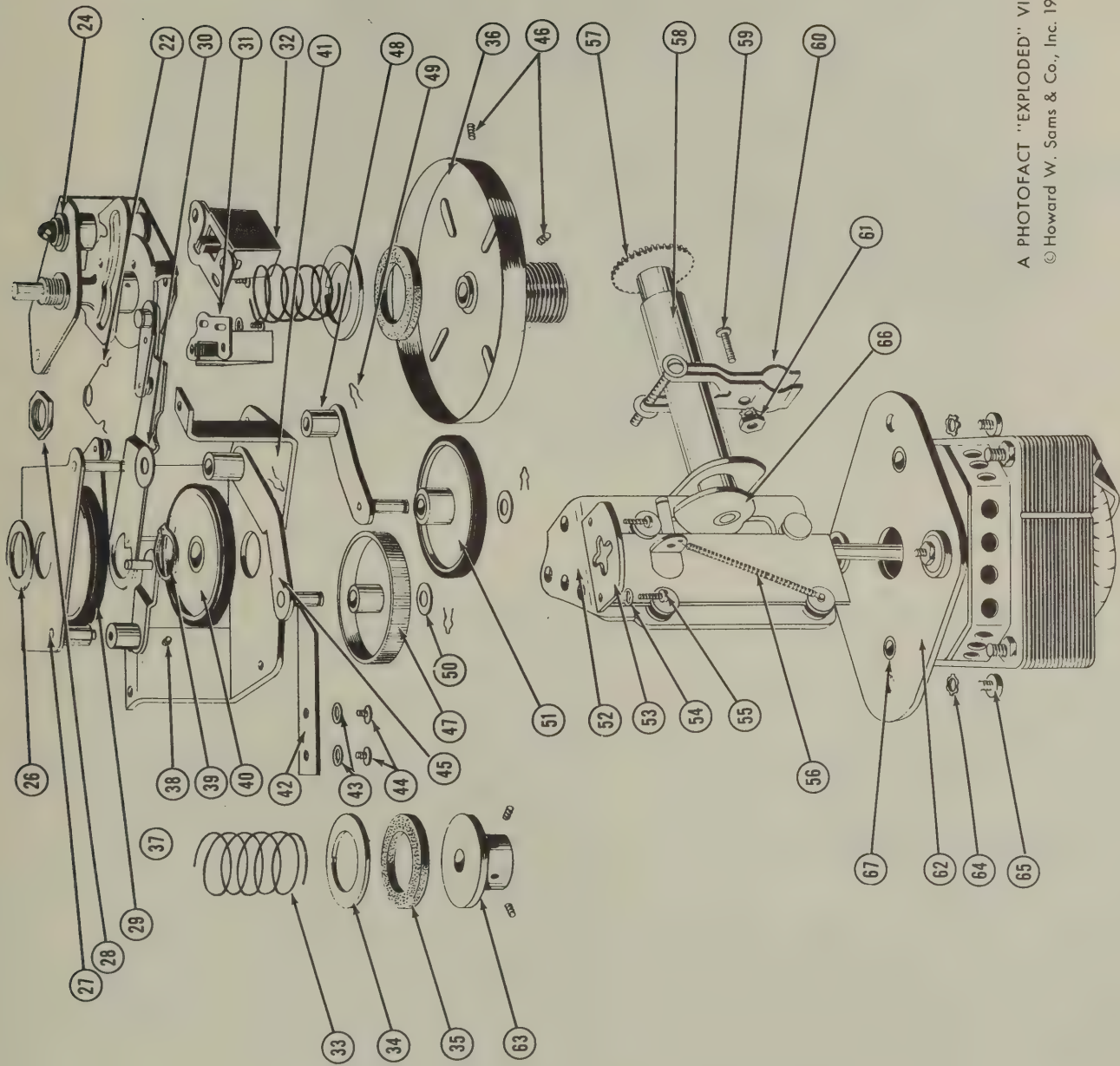
Selector Switch Toggle Action

Check the toggle action by moving the selector switch slowly from "play" to "rewind" position and back. The toggle action should snap the bracket and post assembly (27) with a positive and even action to each position.

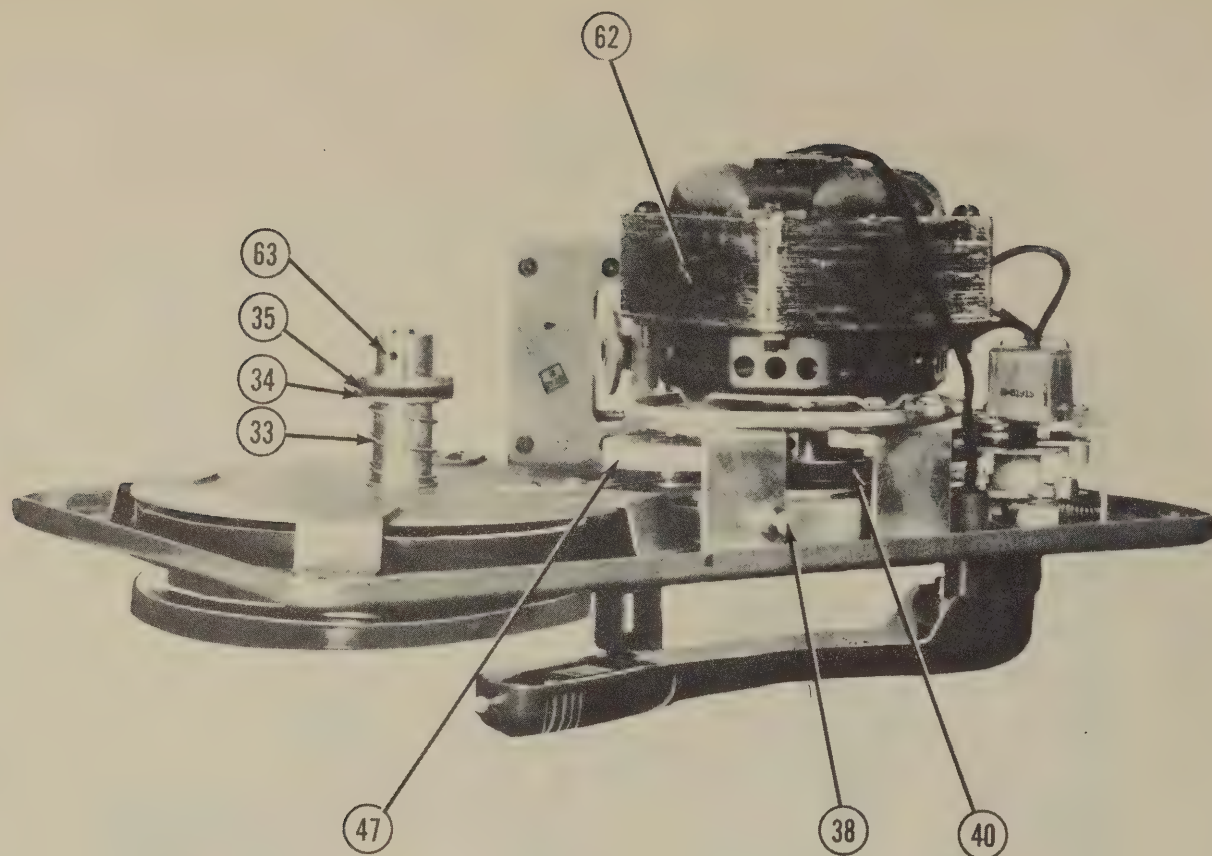
To adjust the toggle action:

1. Hold the drive control spring (22) with pliers and loosen the set screw in the arm and link assembly (37).





A PHOTOFACT "EXPLODED" VIEW
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REAR VIEW

2. Moving the adjustment toward the rewind pulley (36) gives more positive action when switching to the rewind position.

3. Moving the adjustment toward the selector switch assembly (24) gives more positive action when switching to play position.

4. Normally the position should be about mid-way in the adjustment range.

ADJUSTMENTS

Worm and Gear Adjustment

Block the slide assembly (53) in its maximum up position so that the cam pin will not come in contact with the cam (66) while checking the worm and gear adjustment. Hold the fibre gear in one hand and rotate the rewind pulley (36) with the other hand. Check the clearance between the fibre gear and the worm at least every ninety degrees rotation of the fibre gear. The clearance should be as little as possible without causing drag or binding. To adjust the clearance, loosen the three nuts on the level wind assembly (52) about $\frac{1}{4}$ to $\frac{1}{2}$ turn. Swing the entire assembly until the adjustment is proper. After retightening the three nuts (evenly) push the slide assembly through its entire stroke to be sure the recording head does not bind on the edge of the hole in the motor board.

If the end play in the cam shaft is more than approximately .005", loosen the set screw in the cam

(66) and push the cam and fibre gear toward each other until the proper adjustment is reached.

Transfer Switches

Switch (31) is the "on-off" switch for the motor and should be in the "on" position for all settings of the selector switch except "off." With the selector switch in "play" position, loosen the two screws holding the switch (31) to the switch bracket assembly and move the switch in until maximum travel of the switch is attained.

Switch (32) is the transfer switch which turns the erasing oscillator on when the selector switch is in "record" position. With the selector switch in "record" position, loosen the screws holding the switch (32) to the switch bracket assembly and move the switch in until maximum travel of the switch is attained.

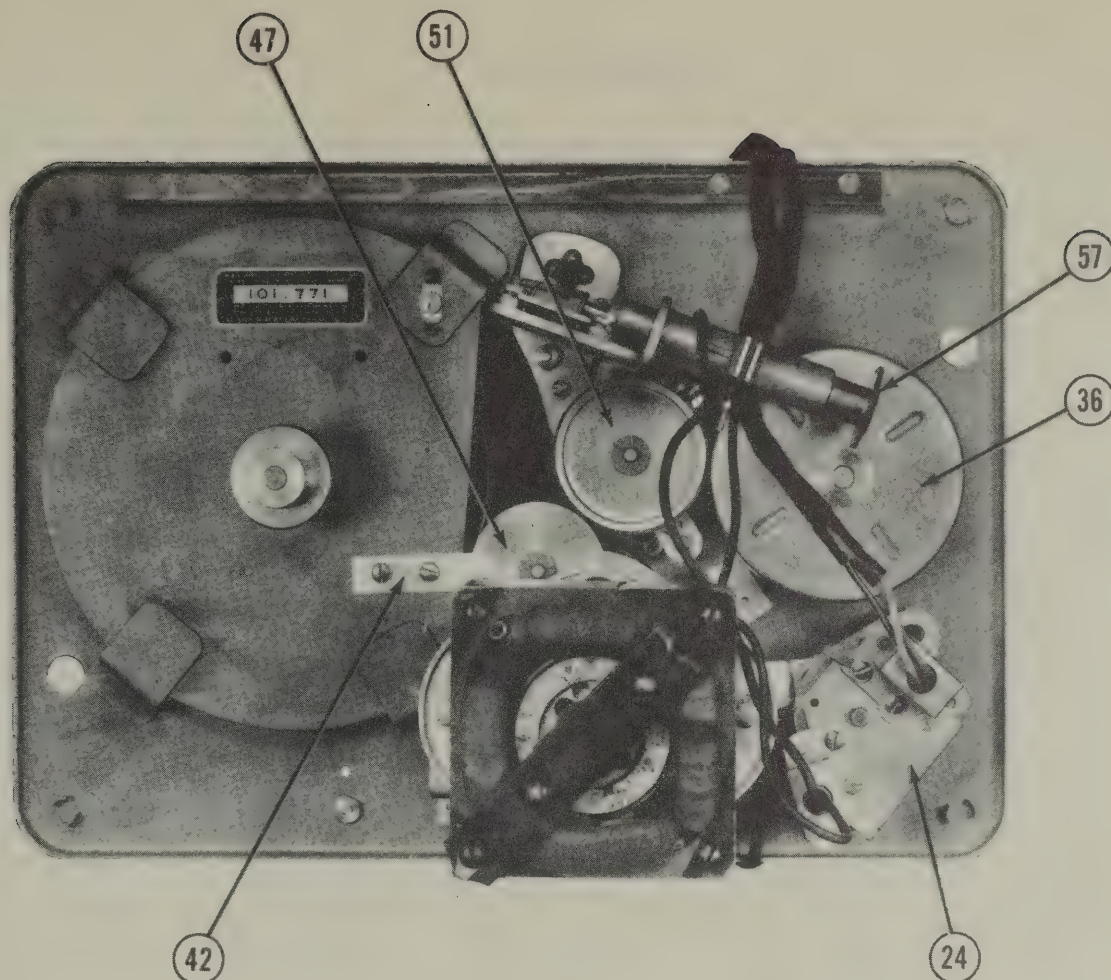
Turntable Torque Adjustment

Proper adjustment of the turntable torque is very important. Insufficient torque will result in inconsistent turntable speed, causing "wow." Too much torque will result in wire breakage when switching from "rewind" to "play."

To adjust the torque proceed as follows:

1. With power connected, turn the selector switch to "play" position.

2. Loosen the locknut on the adjustment screw (38).



BOTTOM VIEW

3. Turn the adjustment screw clockwise until the turntable stops rotating.

4. Back out the adjusting screw (38) until the turntable turns at what seems to be an even speed. This will be about $\frac{1}{2}$ turn of the screw.

5. Thread on a spool of wire and let it wind on to the turntable for about ten minutes.

6. Turn the selector switch to rewind position and let run until the maximum rewind speed is reached (5-10 seconds).

7. Turn the selector switch to play position. If the adjustment of (38) is correct the turntable should continue to rotate in a counter-clockwise direction for about $\frac{1}{2}$ turn before reversing. If the turntable does not turn $\frac{1}{2}$ turn, or if the wire breaks, the torque is too high and the adjustment screw should be turned in a clockwise direction. If the turntable turns much more than $\frac{1}{2}$ turn, or if it loses wire, the torque is too low and the adjustment screw must be turned in a counter-clockwise direction.

8. Using the crystal pickup, play the single tone of a standard frequency record and adjust the screw (38) slightly in either direction for the position giving least "wow." Tighten the locknut, being careful not to disturb the adjustment of the screw. Recheck for wire breakage by going from maximum rewind speed to "play."

Level Wind Adjustment

Rotate the cam (66) so that the recording head is at the bottom of its travel. In this position the lamination slot in the recording head should be approximately $\frac{1}{64}$ " above the motor board. If the slot is closer than this, loosen the two screws holding the recording head to the slide (53), and place additional shims (25) between the slide and the head until the slot is $\frac{1}{64}$ " above the motor board.

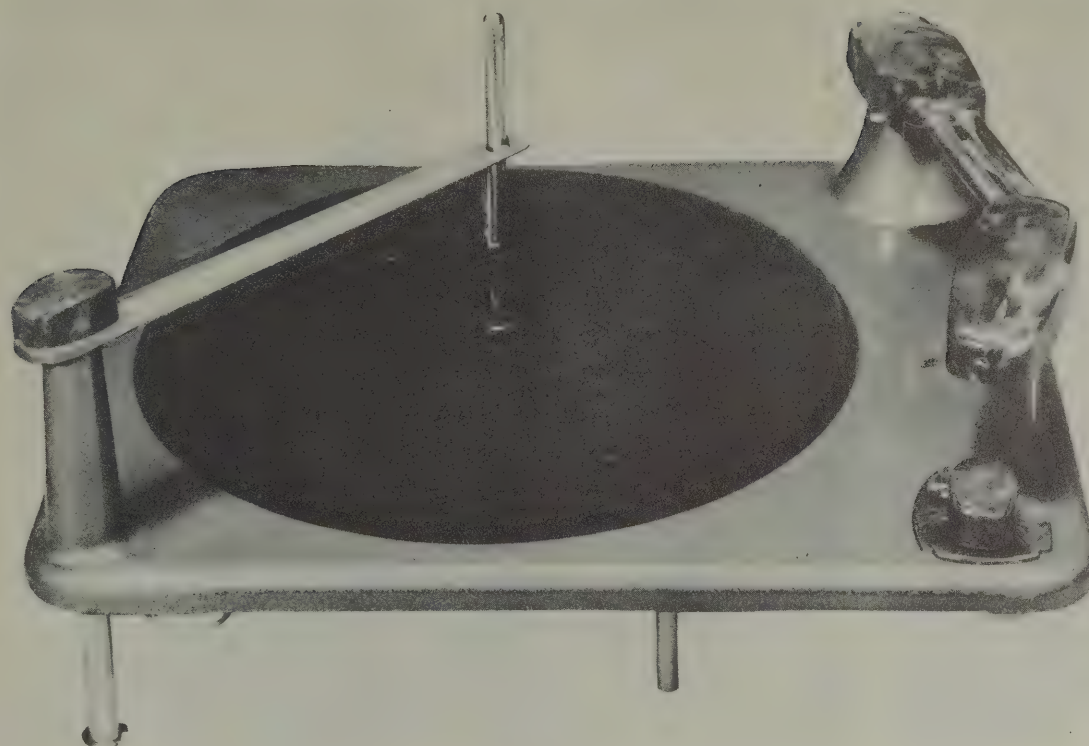
Thread on a spool of wire and let it wind on to the turntable for about ten minutes. Turn the selector switch to rewind position and observe if the wire rubs on the reset switch trip lever at the top of the cam action after about one-half minute of rewind. The reset switch trip lever should not depress the wire more than approximately $\frac{1}{64}$ " when the cam is in its top position.

Let wire wind on to the turntable for approximately twenty minutes and observe how the wire lays into the channel. With proper adjustment it should be even all the way across the channel. If it piles up in the top of the channel, remove the turntable and add washers (17) until the condition is corrected. If the wire piles up in the bottom of the channel, washers should be removed.

After making this adjustment, let the wire rewind for approximately seven minutes and repeat the procedure of the preceding paragraph.

PARTS LIST

Ref. No.	Part No.	DESCRIPTION	Ref. No.	Part No.	DESCRIPTION
1	R52974	Needle retaining screw	39	R61049	Retaining ring
2	R62212	Pickup arm	40	R64543	Motor drive pulley
3	R49744	Lead retaining clip	41	R61930	Motor mtg. bracket
4	R49545	Screw set—No. 8-32 x 3/16" Allen headless	42	R63051	Stop—knurl wheel
5	R61917	Knob—selector switch	43	R401-6	Lock washer
6	R410-20	Nut— $\frac{3}{8}$ -32 hex—St.—C. P.	44	R203-3	Screw—No. 6-32 x 3/16" bd. hd.
7	R402-20	Washer—Lock $\frac{3}{8}$ int. tooth	45	R61982	Link assembly—movable
8	R61916	Nameplate—drive control	46	R49533	Screw—No. 6-32 headless set—Allen
9	R52848	Spring—pickup arm counterbalance	47	R62000	Pulley and bushing assembly (knurled)
10		Pickup arm hub assembly—part of item 2	48	R61983	Link assembly—rewind
11	R62010	Screw—No. 4-36 x 1" flat hd.	49	R61972	Clip—spring
12	R61977	Crystal cartridge	50	R61981	Washer—cloth
13	R52866	Screw—cartridge attaching	51	R64544	Idler pulley
14	R61969	Turntable assembly	52	R61965	Level winder assembly
15	R61973	Pickup arm rest	53		Slide assembly—part of item 52
16		Turntable shaft—part of item 14	54	R400-4	Washer—lock No. 4 split
17	R62006	Washer—fiber spacing	55	R62068	Screw—No. 4-40 x $\frac{3}{8}$ " fil. hd.
18	R61959	Base plate assembly	56	R61964	Spring—level winder
19	R61979	Head—recorder	57	R49786	Fiber gear and shaft assembly
20	R61967	Rewind spool hub assembly	58		Part of level winder assembly
20A	R63182	Thumb screw	59	R203-6	Screw—cable anchoring
20B	R63185	Rewind spool	60	R61920	Cable clamp
20C	R63187	Rewind shaft	61	R411-6	Nut—No. 6-32 hex
21	R62009	Automatic switch assembly	62	R61985	Motor assembly
22	R61927	Spring—drive control		R61986	Motor—60 cycle—115 volts
23	R203-7	Screw—No. 6-32 x 7/16 bd. hd.		R61988	Plate—motor
24	R61997	Switch bracket assembly		R61913	Plate—motor mtg.
25	R63003	Spacer—recorder head	63	R61974	Spring support—turntable shaft
26	R61963	Washer—flat—brass 41/64" I. D.—1.0" O. D.	64	R402-10	Washer—lock No. 10 ext. tooth
27	R61998	Bracket and post assembly	65	R205-6	Screw—No. 10-32 x $\frac{3}{8}$ " bd. hd.
28		Nut—lock type—part of item 2	66	R49787	Level wind cam assembly
29	R63733	Wheel—idler	67	R62003	Grommet—rubber
30	R44641	Washer—spring		R61543	Cable and plug—transfer
31	R61994	Switch assembly—on-off		R62008	Cord—line
32	R61995	Switch assembly—transfer		R61960	Spring—compression—(switch bracket assembly)
33	R61975	Spring—turntable		R61193	Spring—compression—plate mtg. (heavy)
34	R61970	Washer—keyed		R62007	Spring—compression—plate mtg. (light)
35	R61971	Washer—felt		R61976	Spring—compression—pulley assembly—rewind
36	R61966	Pulley assembly—rewind		R61984	Drive link assembly
37	R62002	Arm and link assembly		R63708	Shield—motor
38	R203-10	Screw—No. 6-32 x $\frac{5}{8}$ " bd. hd.		R61968	Washer—retaining



TOP VIEW

GENERAL INFORMATION

The V-M 400 changer is designed to play automatically up to ten 12-inch, twelve 10-inch, or ten intermixed records. The changer will shut off automatically at the completion of the last record. The unit is designed to be jam-proof. The pickup arm may be held and the control knob may be turned to any position during cycle.

Manufactured by V-M CORPORATION, Benton Harbor, Michigan

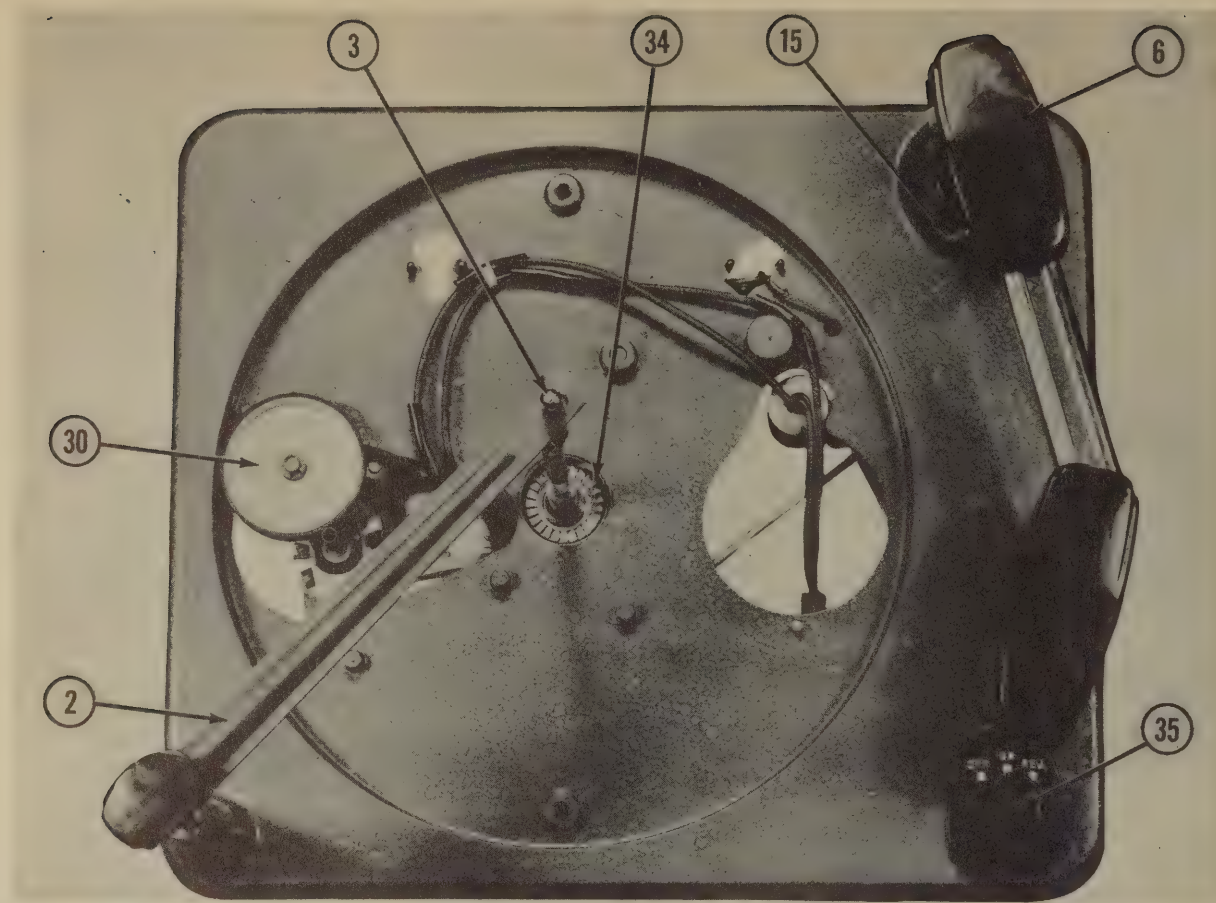
THIS CHANGER HAS BEEN USED IN POSTWAR PRODUCTION BY THE FOLLOWING MANUFACTURERS:

AMECO.....	37 E. 18th Street, New York, New York
Crosley Corporation.....	1329 Arlington Street, Cincinnati, Ohio
Electronic Laboratories.....	122 W. New York Street, Indianapolis, Indiana
Howard Radio Company.....	1731 Belmont Avenue, Chicago, Illinois
Majestic Radio & Television Corp.....	50th and Rockwell, St. Charles, Illinois
Motor Parts Company.....	1229 N. Broad, Philadelphia, Pennsylvania
Stewart-Warner Corporation.....	1826 Diversey Parkway, Chicago, Illinois
Templetone Radio Mfg. Company.....	100 Garfield, New London, Connecticut

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TOP VIEW LESS TURNTABLE

Manual Operation:

Odd-sized or warped records, and home recordings should be played manually:

1. Raise the record support clear of the spindle and swing the record support either direction until the pin in the support shaft drops into the locating groove.

2. Place record on turntable:

- (a) For the record to pass the step on the spindle, tilt the record toward the back of pickup arm and work record carefully over step.

3. Turn control knob (35) to "On" position.

4. Press down on the trip lever (15) which is located near the back of the pickup arm.

5. Place pickup arm on record.

6. Upon completion of the record move the pickup arm all the way in to the spindle before returning it to its rest position.

7. When playing records from the inside out,

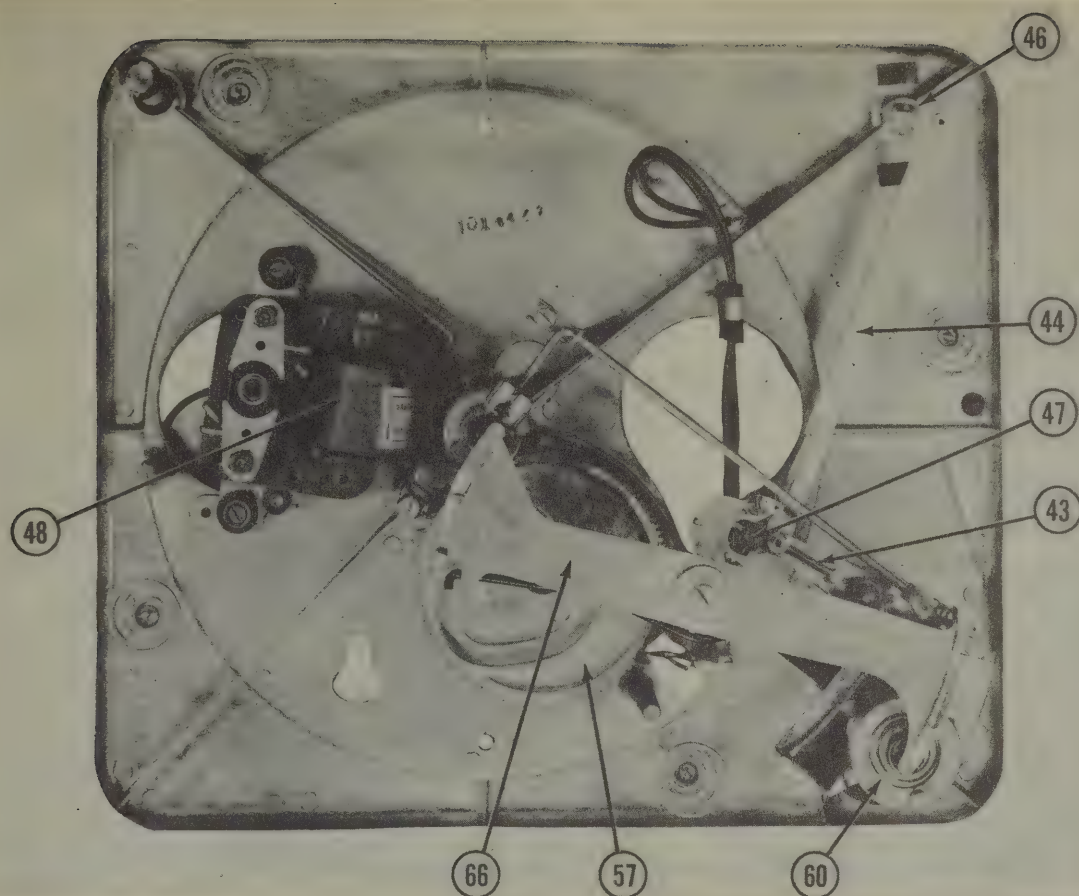
move the pickup arm all the way in to the spindle before setting it down on the first playing grooves of the record.

Automatic Operation:

1. Pull straight up on the record support knob (1) and swing the record support in either direction until the pin in the shaft drops into the locating groove.

2. Place as many as ten 12-inch, twelve 10-inch, or ten records intermixed on off-set shoulder of the spindle. Steady the records with one hand and replace the record support over the spindle. Press down gently on the record support knob until records are parallel with the turntable.

3. Turn the control knob clockwise to "Rej." and release. The changer will now play the entire stack and, on completion of the last record, will return the pickup arm to the rest post and shut off automatically.



BOTTOM VIEW

4. To reject a record at any time while it is playing, turn the control knob to "Rej." and release.

Repeating a Record:

1. Pull straight up on the record support knob and swing the record support in either direction until the pin in the shaft drops into the locating groove.

2. Remove any records remaining above the off-set shoulder of the spindle. Do not replace the record support over the spindle. The changer will now repeat the top record on turntable until control knob is turned to "off."

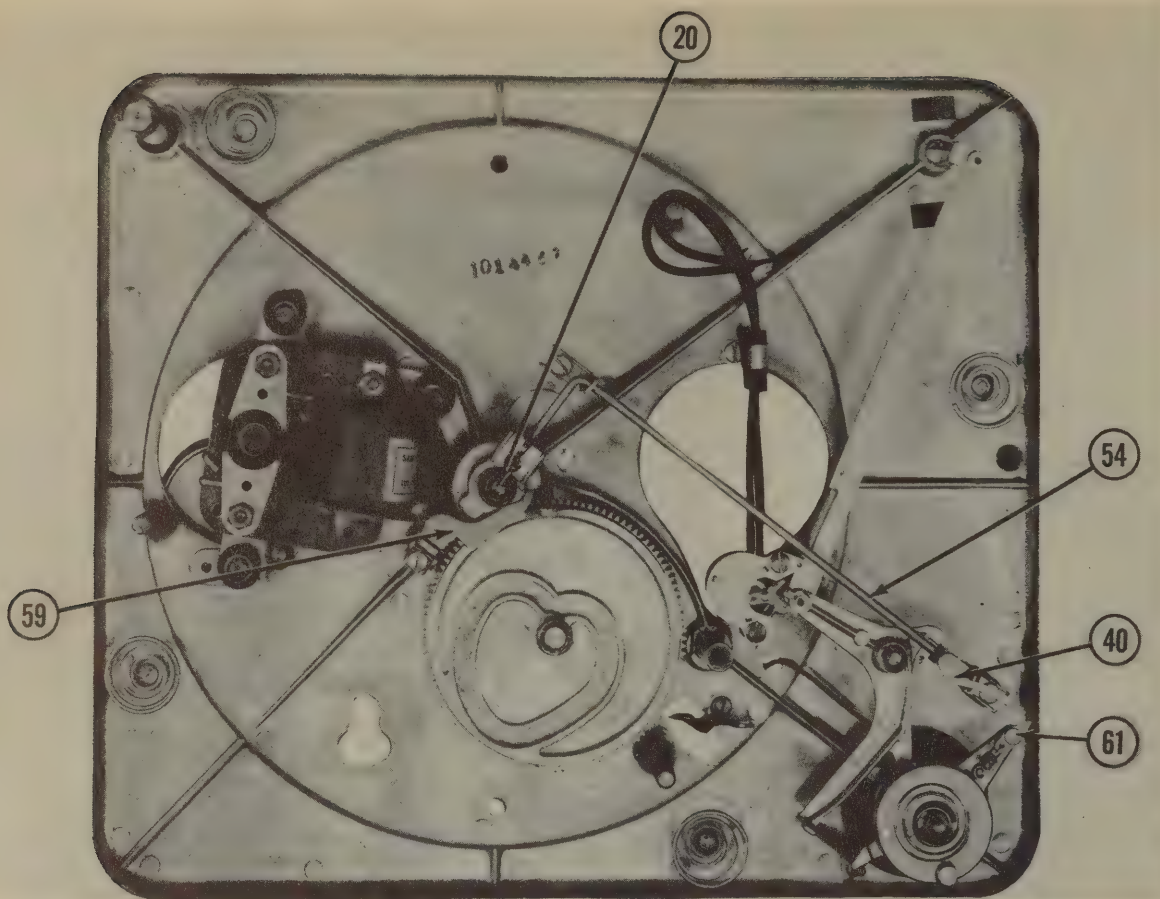
CHANGE CYCLE

When the control knob (35) is turned to the position marked "On," the control crank (46) is turned. The control crank then moves the control link (44) and, in turn, the control lever (43). Thus point "A" of the control lever engages the

switch arm of the switch assembly (47), turning the motor on and starting the turntable to rotate.

By turning the control knob to "Rej.," point "B" of the control lever is pivoted against the pin extending up from the ratchet (40). The bent end of the trip rod (54), which ordinarily rests against the catch (49) to prevent the catch from being disengaged from the latch (59), is now turned away from the catch through the action of the ratchet. The catch is now free to move backward. The part of the latch (59) on which the catch rests is on an angle. This allows the latch spring (34A) to move the latch up forcing the catch out and raising the pinion gear clutch teeth (34) to engage the clutch teeth of the turntable hub. With this engagement the pinion gear is rotated, thus turning the main cam (57).

As the pickup arm moves across the record, the ratchet pawl (61) slides along the face of the ratchet (40). At the end of the record, the eccentric groove causes the pickup arm to oscillate back and forth. As the arm moves away from the



BOTTOM VIEW LESS LIFT ARM

spindle, the pawl (61) on the ratchet arm (60) straightens, pushing against the ratchet (40). This causes the ratchet and the trip rod (54) to turn down. This gives the catch (49) free movement to be disengaged from the latch (59) through the action of the latch spring (34A) pushing against the latch. The pinion (34) then engages the clutch teeth of the turntable hub by the upward movement of the latch against the pinion. The pinion now rotates, turning the main cam (57).

As the main cam turns, the roller (67) of the lift arm (66), which rides in the heart-shaped groove on the bottom of the gear, actuates the lift arm. One end of the lift arm controls the action of the pickup arm. The other end of the lift arm raises and lowers the roller (20) on the bottom of the spindle shaft. As the lift arm moves, cam "B" of the lift arm contacts the lift rod (64), thus raising the pickup arm off the record. As soon as the pickup arm is fully raised, the cam surface "C" on the extreme end of the lift

arm contacts the boss extending down from the ratchet arm (60) swinging the pickup arm out to clear the records. As the pickup arm is swinging out, a projection on the set-down locator (45) snaps into a mating indentation in the ratchet arm (60) caused by the pressure of the lift rod spring (63) against the ratchet arm. When this occurs, the set down locator turns with the ratchet arm. Inside the ratchet arm the safety spring (56) holds a casting on the bottom of the pickup arm locator assembly (55) against a stop surface inside the ratchet arm so the two assemblies move together unless the pickup arm is held during the cycle. In this case, the safety spring allows the ratchet arm to move even though the pickup arm is held, thus preventing injury to the mechanism. The pickup arm is moved out until a stop extending down from the hinge body (18) strikes a stop in the base plate. The pickup arm is now clear of the records so they are free to drop to the turntable. After the hinge body strikes the stop, preventing the pickup arm and hinge body

from moving farther, the lift arm (66) continues to turn the ratchet arm (60) a little farther around. By this movement the ratchet arm turns the locator which, in turn, turns the pickup arm locator (55), the hinge bearing (22), which is fastened to the pickup arm locator by screw (21), and the adjusting ring (11) which is fastened to the hinge bearing by the two set screws (10). This causes a gap between the end of one leg of the catch (17) and the stepped catch surface extending from the adjusting ring. This allows the catch spring to pull the leg on the catch (17) around until it hits the stop extending out at right angles to the outer step in the leg on the adjusting ring. In this position the pickup arm will set down for 10-inch position. When a 12-inch record is dropped, the record hits the trip lever (15) which, in turn, pivots the hinge cam (16) against the catch (17) to move it away from the outer step of the adjusting ring. The catch is held in this position by the step in the hinge cam which rests on the surface of the catch to prevent the catch from returning to its original position. The pickup arm is now set for 12-inch set-down by the tension of the ring spring (9) which pulls against the hinge body (18).

At approximately the same time cam "C" contacts the boss on the bottom of the ratchet arm, the spindle roller (20) contacts cam "A" of the lift arm (60). The roller then raises, causing the pusher shaft (19A) to move upward. An ear extending from the pusher spring (4A) presses against the bottom end of the record pusher (4), thus holding the pusher against the shaft so that when the pusher shaft (19A) raises the pusher (4) moves straight up so as to enter the center hole of the record. The bottom of the groove of the pusher now reaches the pin in the spindle and, as the shaft continues to raise, it moves the pusher (4) forward pivoting it around the pin, thus dropping a record to the turntable. The portion of the pusher extending above the off-set ledge of the spindle is slightly less than the thickness of a record.

The guide (3A), which is held down by spindle guide spring inside the spindle, prevents

more than one record at a time from being ejected. When records are removed from the turntable, the guide slides straight up allowing free movement up the spindle.

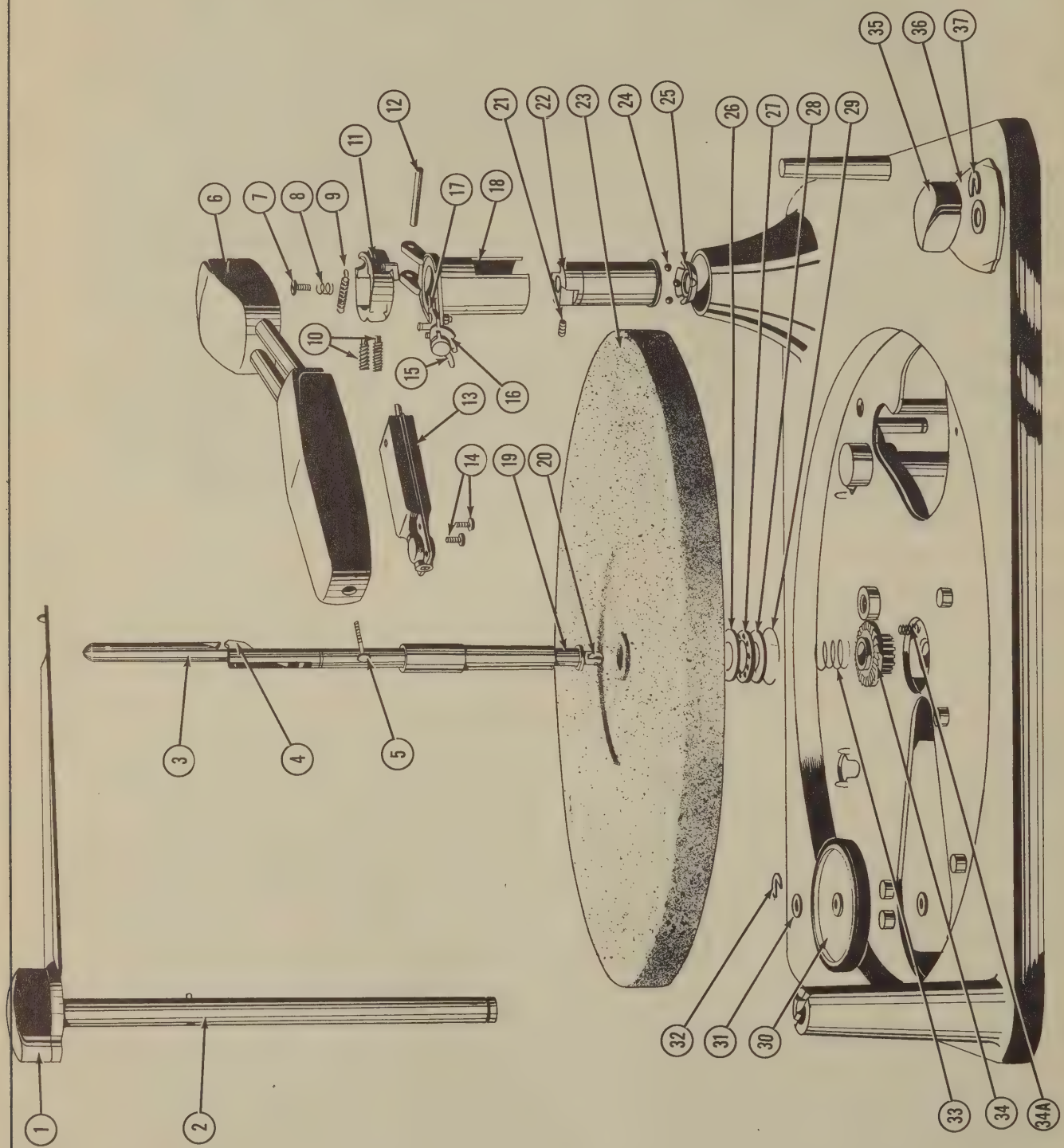
The heart-shaped groove in the bottom of the cam (57) now reverses the movement of the lift arm (66) returning the spindle assembly to its original position, swinging the pickup arm in, positioning it for set-down and lowering the pickup arm to the record. When the lift pin is completely lowered, the tension of lift rod spring (63) against the ratchet arm is released. The ratchet arm will now drop down forming a gap between the indentation in the ratchet arm and the projection on the locator. This allows the pickup arm to have free movement on the record.

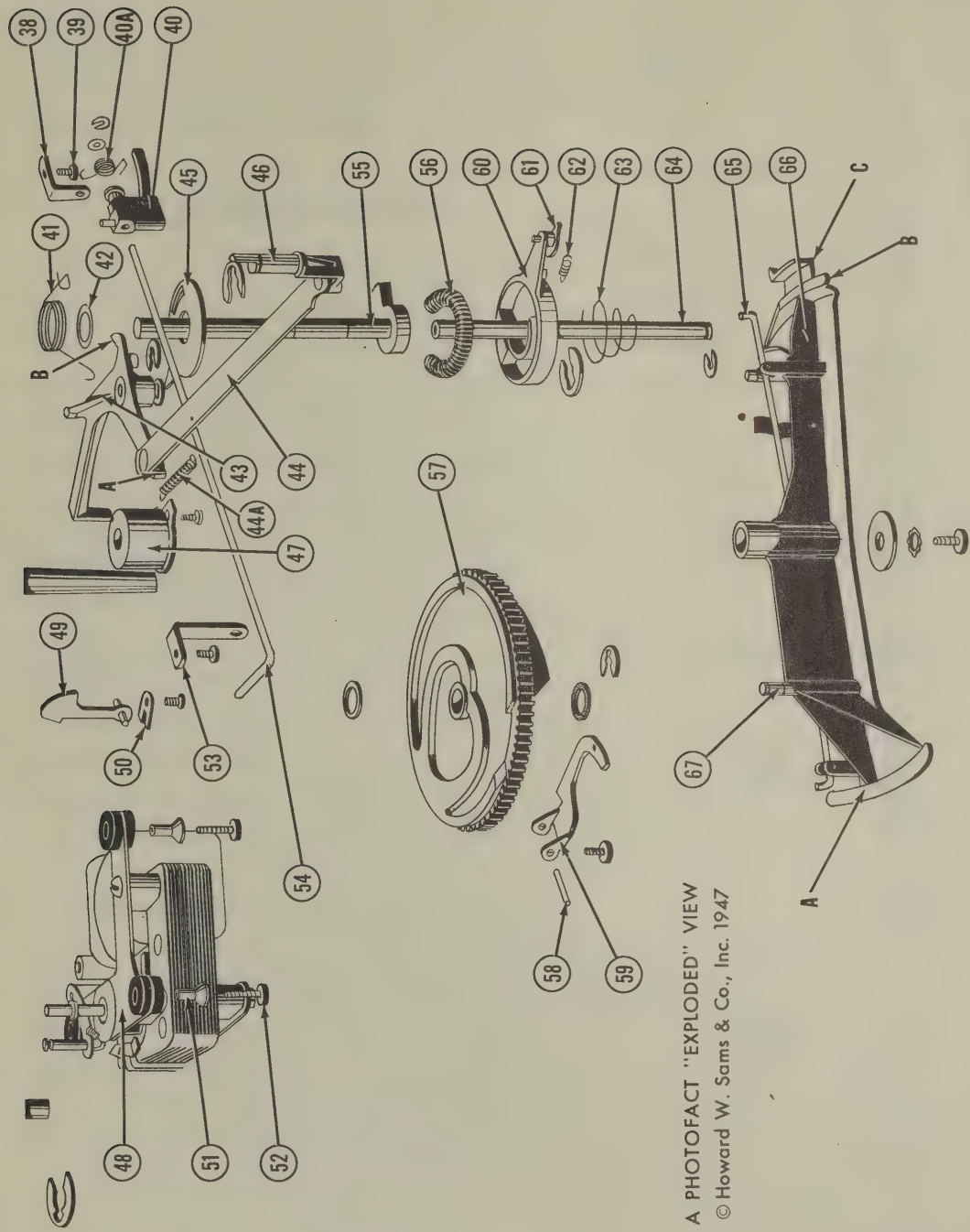
The raised rim on the bottom of the cam (57) comes in contact with the latch (59), pushing it down from the pinion to engage the catch (49) and to be locked there by the trip rod (54), which presses against the step in the catch.

The pinion (34) is now free to drop, and the spring (33) pressing against the pinion helps to disengage the clutch teeth of the pinion and the turntable hub; thus completing the change cycle.

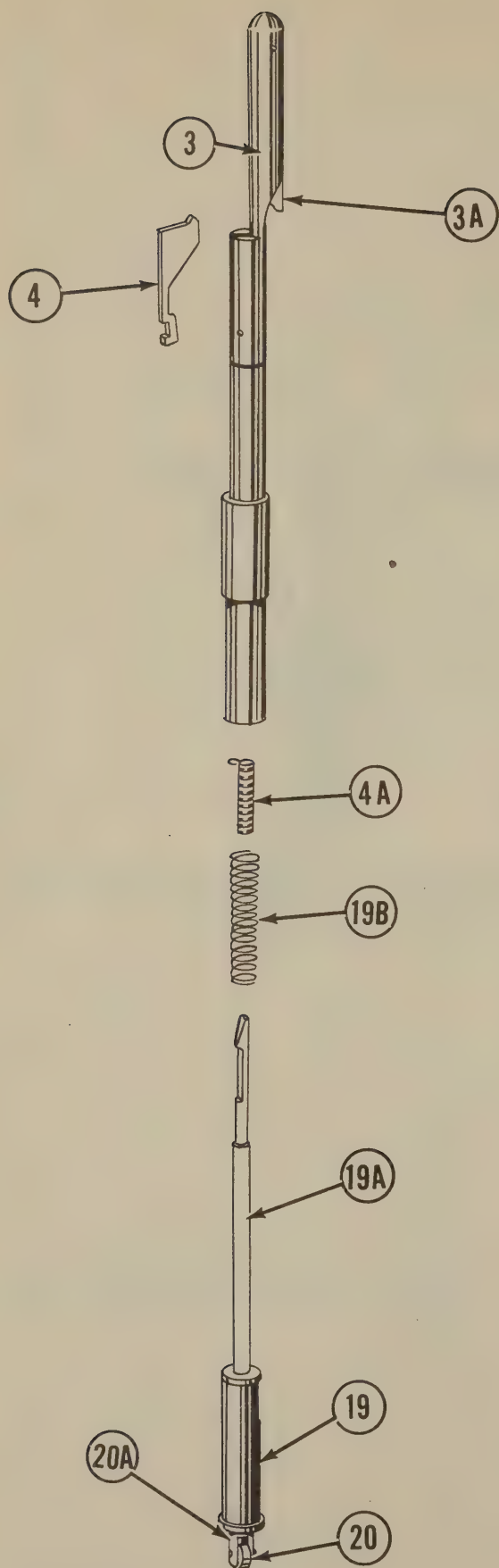
Automatic Shut-off:

After the last record has been played, the record support (2), which is resting on the spindle ledge, prevents the record pusher (4) from moving forward; hence, the shaft (19A) and pusher housing (19) is prevented from moving up as far as it ordinarily does. This causes the roller spring inside the housing to be compressed by the roller plunger (20A) pushing upward, thus preventing injury to the spindle assembly. With the housing and shaft being held down, the bent end of the cut-off lever (65) hits the ring around the pusher housing turning the cut-off lever around 90°. The bent end of the cut-off lever on the pickup arm side of the lift arm (66) is turned up. As the lift arm returns to its starting position, the turned up end of the cut-off lever contacts a boss extending down from one leg of the control





A PHOTOFACT "EXPLODED" VIEW
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EXPLODED VIEW SPINDLE ASSEMBLY

lever, thus actuating the control lever, turning the switch to "off" position, and at the same time, another leg on the control lever catches the extension on the set-down locator (45) preventing the pickup arm from swinging in. As the lift rod rides down the incline of cam "A" of the lift arm (66), the pickup is lowered to the pickup arm rest. The next time the changer cycles, the cut-off lever is returned to its original position.

ADJUSTMENTS

Needle Set-down:

The set-down position of the needle is adjusted by means of the two adjusting screws (10). If the needle is setting down too far out on the record, loosen the back screw (10) and tighten the front screw to lock the adjustment in place. If the needle is setting down too far in on the record, loosen the front screw and tighten the back one. If the hinge bearing (22) has been removed or the set screw (21) has been loosened, the relationship between the hinge bearing and the pickup arm locator assembly must be reset. The adjustment is as follows. Loosen the Allen set screw (21) enough to allow the hinge bearing to slide on the pickup arm locator assembly shaft (55). Place a 1/32 inch shim between the set-down locator (45) and the ratchet arm (60). Turn the control knob to the "off" position. Place the pickup arm on the rest. In this position the arm of the locator (45) should be in locked position by the leg of the control lever (43). Take up all the play between the parts by pressing up on the bottom of the ratchet arm (60) and down on the hinge bearing (22). Tighten the set screw (21) with an Allen wrench and remove the shim.

Pickup Arm Height:

The height of the pickup arm is adjusted by the screw (7) located on top of the lift rod (63). The height should be adjusted so that the underneath side of the pickup arm clears the rest post by 1/8" to 3/16".

TROUBLES

Record Does Not Drop

When the Changer Cycles:

1. Spindle pusher shaft (19A) broken:
 - (a) To replace the roller assembly (19), loosen the set screw which holds the spindle in the spindle housing of the base plate.
 - (b) Slip the pusher shaft return spring (19B) over the pusher shaft.
 - (c) Turn the ear of the pusher spring (4A) until it faces out the milled opening of the spindle.
 - (d) Insert the roller assembly in the spindle with the flat milled section at the top of the pusher shaft facing the milled opening in the spindle.
 - (e) Press down on the spindle so as to raise the pusher shaft (19A) in order to hook the pusher (4) around the pusher pin. Press the pusher back until it touches the spindle body.
 - (f) Push down and back on the pusher end slightly upon the bottom of the roller assembly until the pusher snaps into place.
2. Pusher spindle not moving far enough forward to eject a record:
 - (a) Check the screw that holds the lift arm to see if it is turned all the way in.
 - (b) Check to see if roller spring in the housing (19) is compressed slightly when the roller (20) nears the end of the incline on cam "A" of the lift arm. If the roller spring is compressed and the pusher does not move forward far enough to eject a record, the spindle should be replaced.
3. Pusher raises outside spindle body:
 - (a) Check the pusher shaft (19A) to see if it is bent. A bent shaft will cause the pusher to

raise the record instead of pushing it off the spindle ledge.

4. Lift arm roller broken off:
 - (a) If the lift arm roller (67) is broken off the lift arm will not turn when the cam (57) revolves.

Two Records Drop at Once:

1. Hole in records too large.
2. Spindle slide not fully down:
 - (a) Check the slide (3A) to see if it is bent or binds at any point.
3. Record support binding on spindle:
 - (a) Check spindle to determine if it is straight.
 - (b) Check record support to see if it is square with the spindle.
 - (c) Check for bind of the record support shaft (2) in the shaft post on the base plate.

Changer Trips Before Completion of Record:

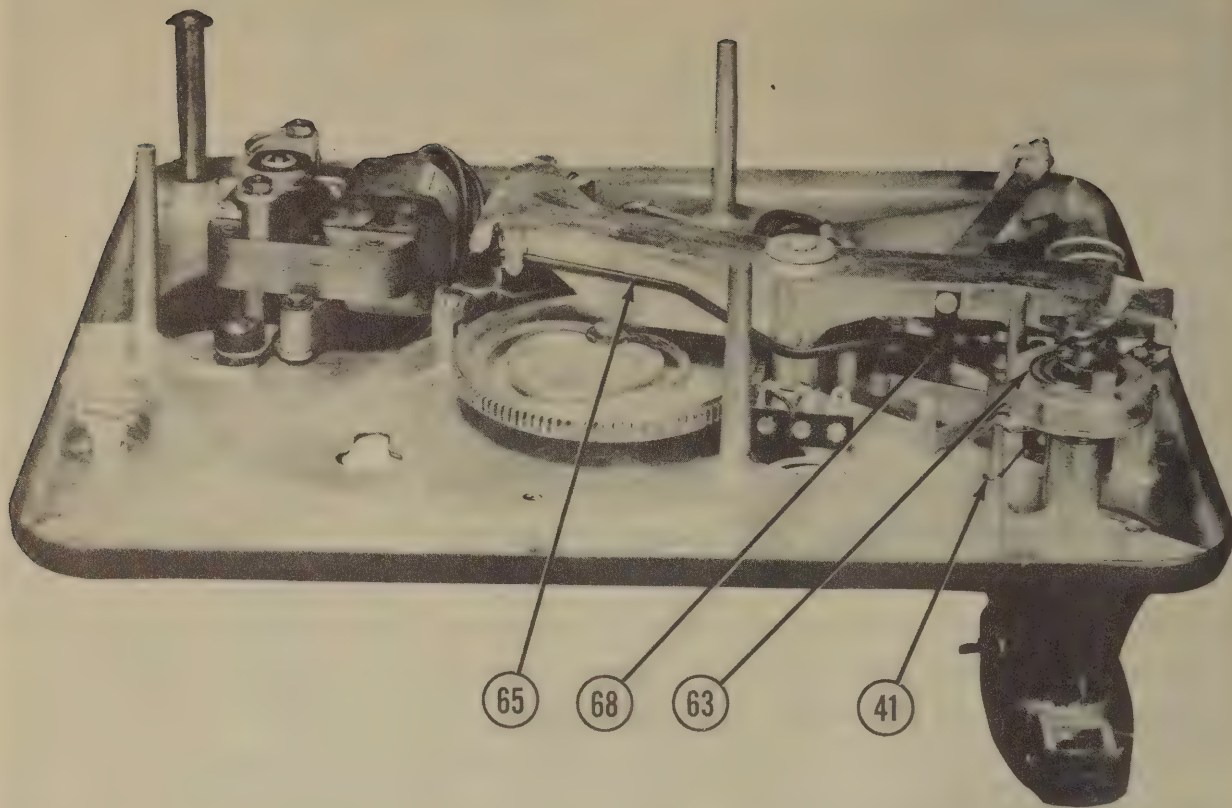
1. Hole in record too large.
2. Spring (40A) loose or does not have enough tension to fully latch the trip catch (49) and the trip rod (54).
3. Trip rod binds.

Changer Does Not Cycle on Completion of Record:

1. Trip rod (54) binds.
2. Pawl (61) binding or pawl spring (40A) loose.
3. Rough surface on end of trip rod.
4. Check latch for binding.
5. Check for burrs on spindle bushing preventing the pinion (34) from raising.

Needle Does Not Track Across the Record:

1. The set-down locator binds on the ratchet arm:



REAR VIEW

(a) There should be a $1/32$ " gap between the ratchet arm (60) and the locator (45) when the mechanism is not in cycle. See "Needle Set-Down Adjustment."

2. Hinge bearing binds:

(a) Lubricate with light oil.

Changer Continues to Cycle:

1. Insufficient tension of spring (40A).
2. Binding in trip rod bearings (53 and 38).
3. Reject spring (44A) loose.
4. Check control crank (46), control link (44), and control lever (43) for binding.

Changer Shuts Off Prematurely:

1. Roller spring inside the housing (19) weak, therefore not pushing the pusher assembly

high enough to clear the end of the cut-off lever.

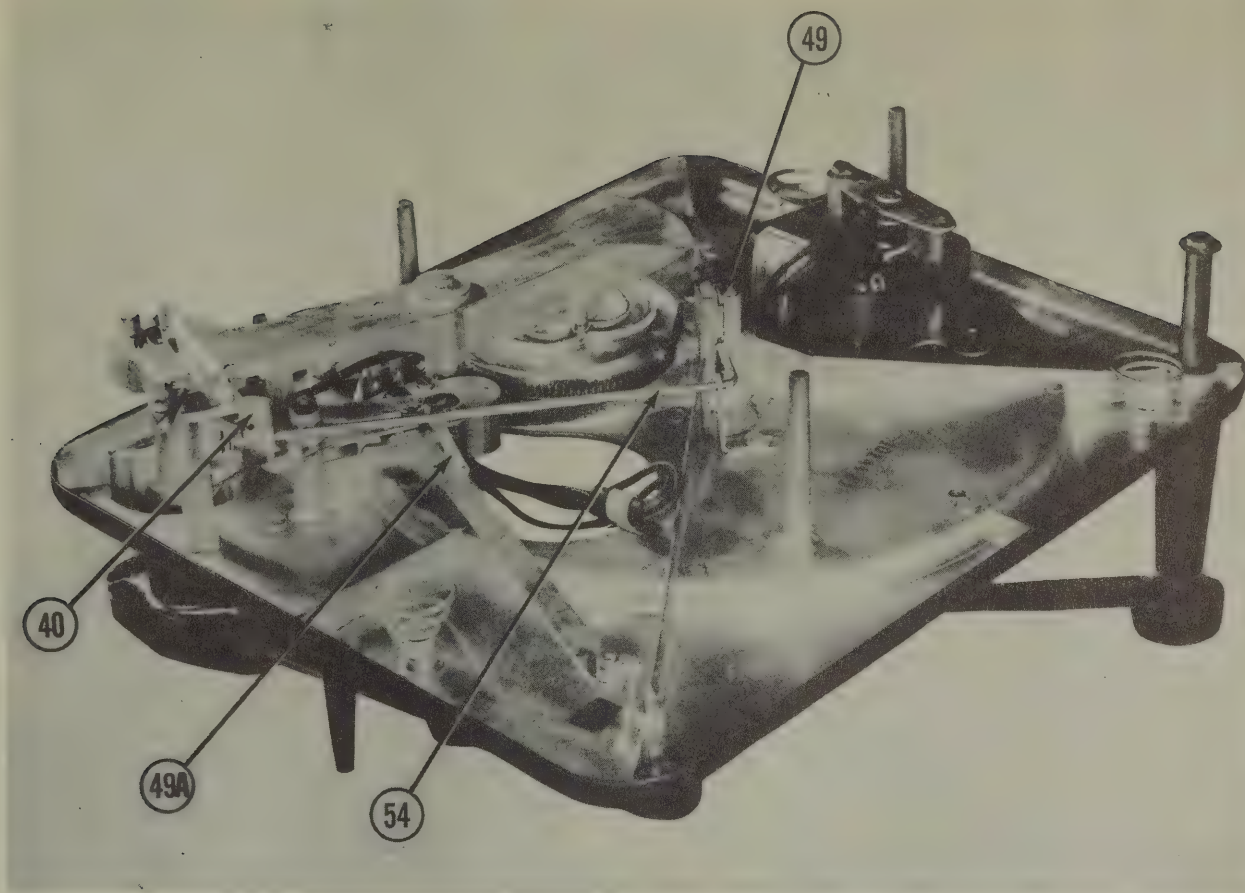
2. Cut-off rod not being reset.

Changer Does Not Shut Off After Last Record Has Been Played:

1. Record support (2) binding and does not drop to spindle ledge.
2. Cut-off rod not engaging the ring on the housing (19):
 - (a) Check the screw that holds the pickup arm to the base plate to see if it is turned all the way in.

LUBRICATION

Additional lubrication should not be required for the life of the changer, but in cases of unusual use or high operating temperature, the changer



SIDE VIEW

should be lubricated as follows: Apply Lubriplate to:

1. Hinge bearing (22).
2. Ratchet arm (60) and set-down locator plate (45).
3. Cam faces on lift arm (66), lift arm bearing, and lift arm cut-off rod bearings.
4. Between lever spring (68) and cut-off rod (65).
5. Heart-shaped cam track on cam (57) and cam bearing.
6. Spindle between roller plunger (20A) and housing (19), and between the housing and the spindle body.

7. Turntable ball bearing (27).

Apply small quantity of light oil to:

1. Pickup arm locator assembly (55) and ball bearings (24) in pickup arm post.
2. Ratchet pawl bearing (61).
3. Trip rod bearings (38) and (53).
4. Control lever bearing (43).
5. Catch bearing (49) (if changer has this catch).
6. Latch bearing (59) (if changer has this latch).
7. Turntable and spindle bearing.
8. Pinion bearing (34).

PARTS LIST

Ref. No.	Part No.	DESCRIPTION	Ref. No.	Part No.	DESCRIPTION
1	1711	Knob	34A	1648	Latch spring
2	1712	Record support assembly	35	1711	Knob
3	1503	Spindle assembly	36	963-2	Escutcheon
3A	1556	Guide	37	1719	"C" washer
4	1552	Record pusher	38	1729	Trip rod bearing
4A	1553	Pusher spring	39	709-A	Screw No. 6 x 1/4" type "Z"
5		Needle screw	40	1590	Ratchet
6	1702	Pickup arm assembly	40A		Torsion spring
7	1616B	Adjusting screw	41	1631	Return spring
8	1901	Lock spring	42	1654	Washer—fibre
9	1574	Ring spring	43	1635	Control lever
10	1580	Adjusting screw	44	1725	Control link
11	1840	Adjusting ring and screw assembly	44A	1721	Reject spring
12	941B	Hinge pin	45	1630	Set-down locator
13	649E	Crystal cartridge	46	1726	Control crank
14	713	Screw No. 4 x 1/4" type "Z"	47	1519	Switch assembly
15	1582	Size change trip lever	48	1881	Russell 220-volt, 50-cycle motor
16	1581	Hinge cam		1923	Russell 110-volt, 50-cycle motor
17	1578	Catch		1525-A	Motor assembly 110-volt, 60 cycle
18	1576	Hinge body	49	1644	Catch
19	1837	Spindle pusher assembly	50	1646	Catch plate
19A		Pusher shaft (part of 19)	51	1600	Grommet spacer
19B	1560	Pusher shaft spring	52	1717	No. 6 x 5/8" type "Z" washer
20	1536	Spindle roller	53	1591	Trip rod bearing
20A	1565	Roller plunger	54	1921	Trip rod
21	1610	Screw		1523	Ratchet assembly
22	1609	Hinge bearing	55	1522	Pickup arm locator assembly
23	1517	Turntable	56	1638	Safety spring
24	724	Ball bearings (3 balls)	57	1601	Cam
25	1614	Bearing spacer	58	1645	Pin
26	1543	Turntable washer	59	1647	Latch
27	1544	Turntable bearing	60	1605	Ratchet arm
28	1543	Turntable washer	61	1606	Ratchet pawl
29	1549	Retainer spring	62	1697	Pawl spring
30	1514	Sampsel drive wheel assembly	63	1620	Lift rod spring
	1515	Russell drive wheel assembly	64	1613	Lift rod
	482	G.I. drive wheel	65	1595	Cut-off lever
31		Fiber washer	66	1594	Lift arm
32		"C" washer	67	1597	Roller
34	1624	Pinion gear	68	1599	Lever spring
33	1735	Pinion spring			

PHOTOFACT^{*} FOLDER SET

*TRADE MARK

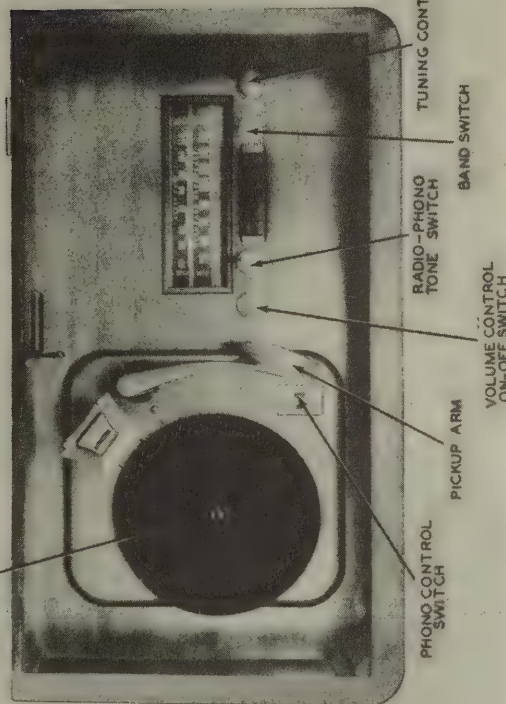
No. 17

See enclosed Index Card for model
or chassis numbers, listed by manu-
facturers, covered in this Set of
PHOTOFACT Folders.

MOTOROLA
MODEL 65F21 (CHASSIS HS-26)



PHONO TURN-TABLE



MOTOROLA
MODEL 65F21 (CHASSIS HS-26)

MOTOROLA MODEL 65F21 (Ch. HS-26)

TRADE NAME	Motorola Model 65F21 (Ch. HS-26)		
MANUFACTURER	Galvin Mfg. Corp., 4545 Augusta Blvd., Chicago, Illinois		
TYPE SET	AC Operated 2 Band Comb. Radio & Auto. Phono.-Superhet. Radio with Self Contained Loop Ant. and Auto. Tuning. Auto. Changer with Record Cap. of 10-10" or 8-12" types.		
TUBES (SIX)	Types, 6SG7 Converter, 6J5 Oscillator, 6SG7 IF Amplifier, 6SQ7 Det.-AVC-AF, 6K6GT Power Output, 5Y3GT Rectifier.		
POWER SUPPLY	117 Volts AC RATING .560 Amp. @ 117 Volts AC		
TUNING RANGE	BROADCAST 535-1620KC	SHORT WAVE 5.6-12.2MC	

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

ALIGNMENT INSTRUCTIONS

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #4 of 6SG7. Low side to chassis.	455KC	BC	High freq. end of dial.	Across voice coil	A1,A2,A3,A4.	Adjust for maximum output.
"	"	1600KC	"	1600KC	"	A5	" " " "
	Loop	1400KC	"	Tune in 1400 KC signal.	"	A6	Adjust for maximum output. Connect output of signal generator to loop of few turns of wire and radiate signal into receiver loop.
400 res.	High side to ext. ant. lead. Low side to chassis.	12MC	SW	12MC	"	A7,A8	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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CHASSIS—TOP VIEW

ITEM No.	USE	REPLACEMENT DATA		RMA STANDARD BASE TYPE	INSTALLATION NOTES
		XOTOROLA PART No.	STANDARD REPLACEMENT		
1	Converter	6SG7	6SG7	8BK	
2	Oscillator	6J5	6J5	6Q	
3	IF Amp.	6SG7	6SG7	8BK	
4	Det.-AVC-AF	6SG7	6SG7	8Q	
5	Power Output	8K6GT	8K6GT	7S	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

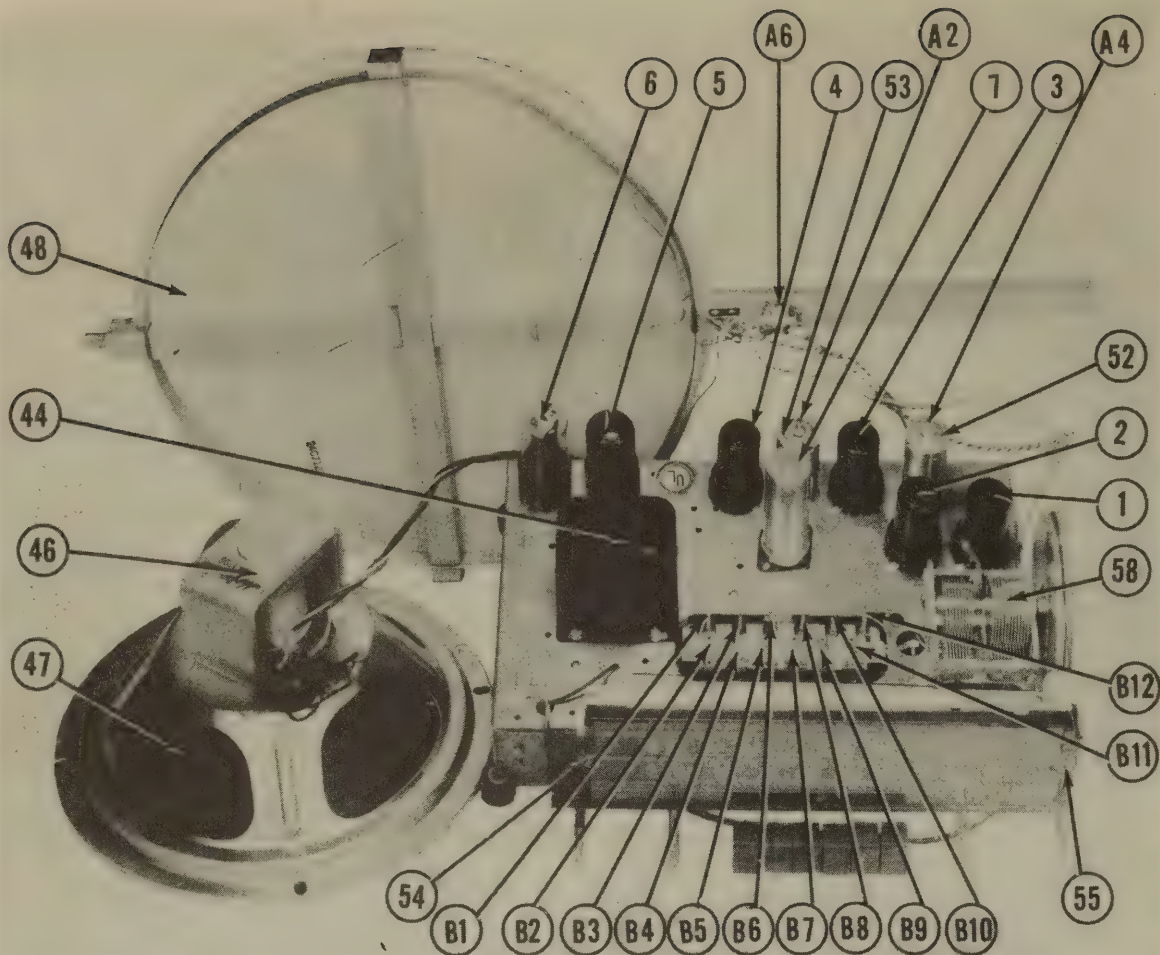
ITEM No.	RATING		MOTOROLA PART No.	MALLORY PART No.	REPLACEMENT DATA		CORNELL-DUBILER PART No.	IDENTIFICATION CODES
	CAP.	VOLT			SOLAR PART No.	SPRAGUE PART No.		
7A	30	350	23A27718	FP331	DY-2X30-350/50-50	EL-323	UF6BJ38	■ Filter
B	30	300						▲ "
C	20	25						"
8	.005	600	8S-9813	TP408	S-6-.005	TC-25	68A--.005	6K5 Plate Bypass
9	.05	400	8S-9816-D	TP426	S-4-.05	TC-15	484--.05	Audio Coupling
10	.005	600	8S-9813	TP408	S-6-.005	TC-25	68A--.005	Tone Compensation
11	.005	600	8S-9813	TP408	S-6-.005	TC-25	68A--.005	"
12	.005	600	8S-9813	TP408	S-6-.005	TC-25	68A--.005	Audio Coupling
13	.06	400	8S-9816-D	TP426	S-4-.05	TC-15	484--.05	Screen Bypass
14	.05	400	8S-9818-D	TP426	S-4-.05	TC-15	484--.05	AVC Filter
15	.05	400	8S-9816-D	TP426	S-4-.05	TC-15	484--.05	OSC. Plate Bypass
16	.05	400	8S-9816-D	TP426	S-4-.05	TC-15	484--.05	Cath. Coupling
17	.05	400	8S-9816-D	TP426	S-4-.05	TC-15	484--.05	AVC Filter
18	500	500			M0.5-.35	1FM-15	1488--.0005	Audio Plate Bypass
19	500	500			M0.5-.35	1FM-35	1488--.0005	Rf Bypass Vol. Cont.
20	100	500			M0.5-.31	1FM-31	1488--.0001	Photo. Coupling
21	50	500			M0.5-.45	1FM-45	1488--.0005	Osc. Grid Cond.
22	1000	500			M0.3-21	1FM-21	1488--.001	Fixed Pad
23	50	500			M0.5-.45	1FM-45	1488--.0005	Rf Coupling
24	535	500						Fixed Tuning

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			CLAROSTAT PART No.	INSTALLATION NOTES
	RESIST-ANCE	WATTS	MOTOROLA PART No.	MALLOY PART No.	IRC PART No.		
25A	1 Meg. Switch	1	18A70068-B Not req.	TT240 S825	D13-137X E 41	AT-98 K53-3 SW-A	Volume Control Attach to 25A per instructions
26A	1 Meg. Switch	1	18K70086-C Not req.	M26			Tone Control Attach to 26A per instructions

RESISTORS

ITEM No.	RATING		MOTOROLA		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PART No.	PART No.	PART No.	PART No.	
27	470K Ω				ETS-470K	Y1-V1-Y1. Ant. Loading	
28	25				ETS-47K	Y1-V1-Or. Osc. Grid	
29	470 Ω				ETS-47K	Y1-V1-Br. Mixer Cathode	
30	4.7 Meg.				ETS-4.7 Meg.	Y1-V1-Grn. AVC Network	
31	4.7 Meg.				ETS-4.7 Meg.	Y1-V1-Grn. AVC Network	
32	3.3				ETS-1.5 Meg.	Br.-Grn.-Grn. AVC Network	
33	1.5 Meg.				ETS-22K	Red-Red-Or. IF Screen Dropping	
34	22K Ω				ETS-1000	Br.-Blk.-Red Osc. Plate Load	
35	100 Ω				ETS-1 Meg.	Br.-Blk.-Grn. Phono Load	
36	35				ETS-1 Meg.	Br.-Blk.-Grn. Diode Load	
37	1 Meg.				ETS-3.3 Meg.	Or.-Or.-Grn. 1st AF Grid	
38	3.3 Meg.				ETS-3.3 Meg.	Red-Red-Blk. 1st AF Cathode	
39	22K Ω				BW-4-22	Red-Red-Y1. 1st AF Plate Load	
40	220K Ω				ETS-220K	Or.-White-Blk. Voltage Divider Bias	
41	39 Ω				BW-4-39	Red-Y1-Br. Voltage Divider Bias	
42	270 Ω				BW-1-270	Or.-Or.-Blk. Tone Compensation	
43	33 Ω				BW-4-33	Br.-Grn.-Blk. Output Grid	
44	150K Ω				ETS-150K		



PARTS LIST AND DESCRIPTIONS (Continued)

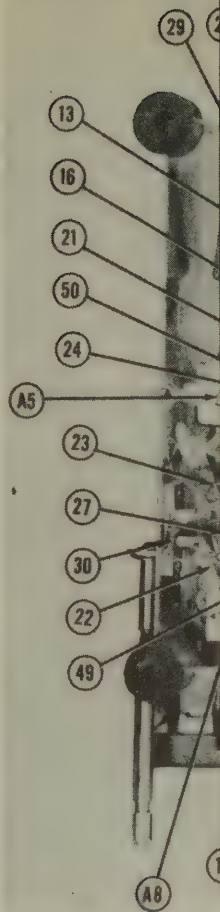
TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA	
	PRI.	SEC. 1	SEC. 2	MOTOROLA PART No.	THORDASON PART No.
44	117V @ .56A	50VCT @ .06A	6.3V @ 2.1A	25B21248	P6119 T-13R11

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	MOTOROLA PART No.	THORDASON PART No.	

CHASSIS—BOTTOM VIEW



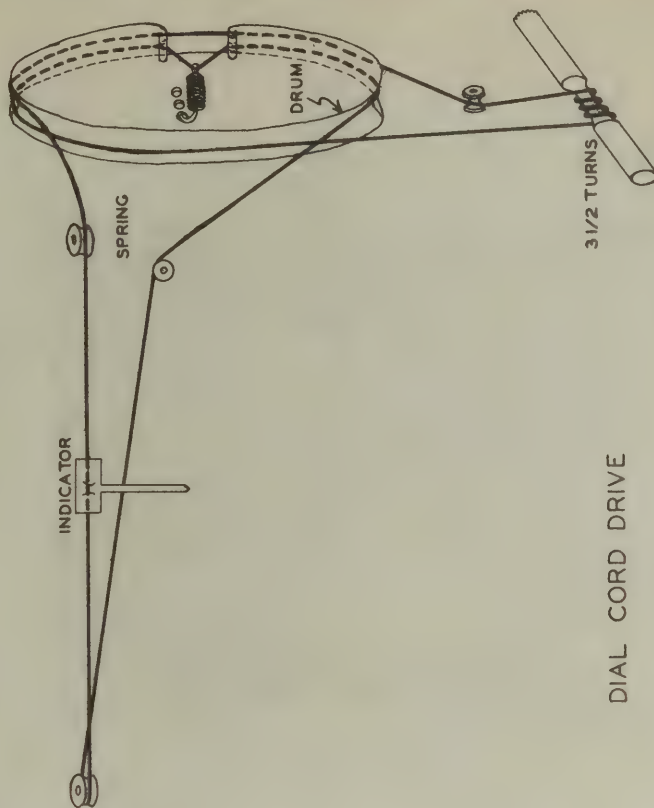
VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	OV.	OV.	2.8VDC	2.8VDC	2.8VDC	120VDC	6.3VAC	200VDC
2	6J5	OV.	OV.	205VDC	OV.	-1VDC	OV.	6.3VAC	OV.
3	6SQ7	OV.	OV.	OV.	-5VDC	OV.	120VDC	6.3VAC	225VDC
4	6SQ7	OV.	-1.38VDC	-1.22VDC	-1.47VDC	-1.47VDC	172VDC	6.3VAC	OV.
5	6K6GT	OV.	OV.	215VDC	225VDC	-15VDC	-17VDC	6.3VAC	OV.
6	5Y3GT	OV.	285VDC	OV.	280VAC	OV.	280VAC	OV.	285VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0Ω	0Ω	440 Ω	2.5MEG	440 Ω	320KΩ	0Ω	320KΩ
2	6J5	0Ω	0Ω	300KΩ	INF	40KΩ	INF	0Ω	1Ω
3	6SQ7	0Ω	0Ω	0Ω	2.6MEG	0Ω	320KΩ	0Ω	300KΩ
4	6SQ7	0Ω	3.4MEG	22 Ω	440KΩ	440KΩ	520KΩ	0Ω	0Ω
5	6K6GT	0Ω	0Ω	300KΩ	300KΩ	150KΩ	310 Ω	0Ω	0Ω
6	5Y3GT	INF	300KΩ	INF	500 Ω	INF	500 Ω	INF	300 KΩ

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- 6 - Volume controls at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
1	Converter	6SG7	6SG7	8BK	
2	Oscillator	6J5	6J5	6Q	
3	IF Amp.	6SG7	6SG7	8BK	
4	Det.-AVC-AF	6SQ7	6SQ7	8Q	
5	Power Output	6K6GT	6K6GT	7S	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MOTOROLA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	30	22A27718	FP331	DY-2x30-350/50-50	EL-323	Filter
7B	30					
8	20					
9	.005	8S-9813	TP408	S-6-.005	TC-25	6K5 Plate Bypass
10	.005	8S-9816-D	TP428	S-4-.05	TC-15	Audio Coupling
11	.005	8S-9813	TP408	S-6-.005	TC-25	Tone Compensation
12	.005	8S-9813	TP408	S-6-.005	TC-25	Audio Coupling
13	.005	8S-9816-D	TP428	S-4-.05	TC-15	Screen Bypass
14	.005	8S-9816-D	TP428	S-4-.05	TC-15	AVC Filter
15	.005	8S-9816-D	TP428	S-4-.05	TC-15	Osc. Plate Bypass
16	.005	8S-9816-D	TP428	S-4-.05	TC-15	Cath. Coupling
17	.005	8S-9816-D	TP428	S-4-.05	TC-15	AVC Filter
18	500		MC246	MO-5-.35	1FM-35	Audio Plate Bypass
19	500		MC246	MO-5-.35	1FM-35	PF Bypass Vol. Cont.
20	100		MC255	MO-5-.45	1FM-45	Phono. coupling
21	50		MC255	MO-5-.45	1FM-45	Osc. grid Cond.
22	1000		MC255	MO-3-.21	1FM-21	Fixed Pad
23	500		MC255	MO-5-.45	1FM-45	RF Coupling
24	535					Fixed Tuning

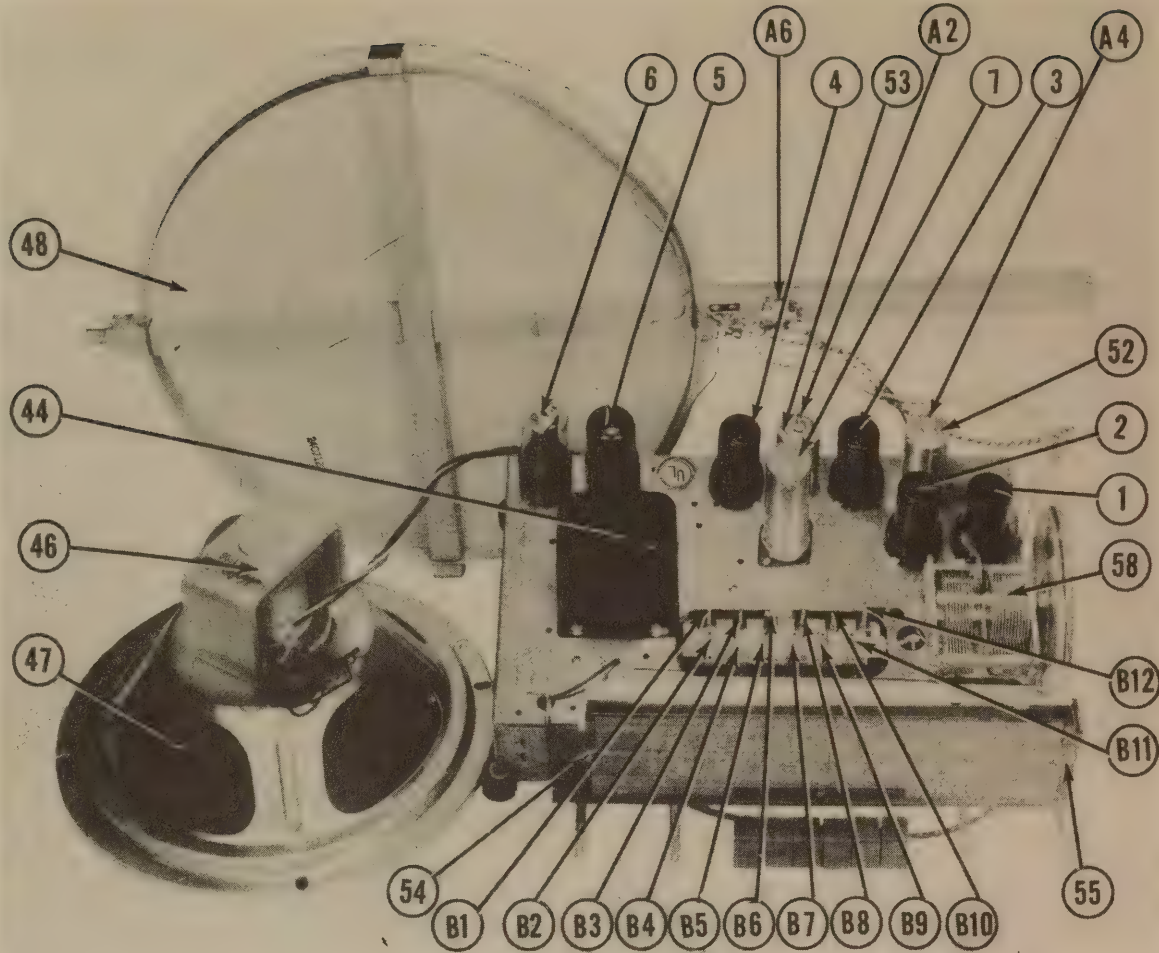
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MOTOROLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
25A	1 Meg.	18A70088-B	TM240	D13-137X	AT-98	Volume Control
25B	Switch	Not Req.	N26	E	KSS-3	Attach to 25A per instructions
26A	1 Meg.	18K70086-C			SW-A	Tone Control
26C	Switch	Not Req.				Attach to 26A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		MOTOROLA PART No.	IRC PART No.	
27	470KΩ		BTS-470K	Y1.-V1.-Y1. Ant. Loading
28	47KΩ		BTS-47K	Y1.-V1.-Or. Osc. Grid
29	470Ω		BTS-470	Y1.-V1.-Br. Mixer Cathode
30	4.7 Meg.		BTS-4.7 Meg.	Y1.-V1.-Grn. AVC Network
31	4.7 Meg.		BTS-4.7 Meg.	Y1.-V1.-Grn. AVC Network
32	1.5 Meg.		BTS-1.5 Meg.	Br.-Grn.-Grn. AVC Network
33	22KΩ		BTS-22K	Red-Red-Or. IF Screen Dropping
34	100KΩ		BTS-100K	Br.-Blk.-Red Osc. Plate Load
35	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. Phono Load
36	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. Diode Load
37	3.3 Meg.		BTS-3.3 Meg.	Or.-Or.-Grn. 1st AF Grid
38	22KΩ		BW-2-22	Red-Red-Blk. 1st AF Cathode
39	220KΩ		BW-2-220K	Red-Red-Blk. 1st AF Cathode
40	39KΩ		BW-2-39	Or.-White-Blk. Voltage Divider Bias
41	270Ω		BM-1-270	Red-V1.-Br. Voltage Divider Bias
42	33KΩ		BM-2-33	Or.-Or.-Blk. Tone Compensation
43	150KΩ		BTS-150K	Br.-Grn.-Br. Output Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	THORDASON PART No.
44	117V @ .56A	550VCT @ .06A	5V @ 1.9A	8.3V @ 2.1A	25B21248	P6119	T-13R11

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	PRI.	SEC.	DC RES.	MOTOROLA PART No.	STANCOR PART No.	THORDASON PART No.	
45	7000Ω	3Ω	4Ω	.5Ω	25B21175	A-3850	T-13S37	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC IMP.	MOTOROLA PART No.	JENSEN PART No.	
46	1275	3Ω	50B71799	ST-4417	†Change the output transformer to match 6Ω voice coil.
47	9-13/16"	1"	NOT READILY	REPLACEABLE - USE COMPLETE SPEAKER UNIT.	

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
48	Loop Ant.	0Ω	1.4Ω	24C71224		
49	SW Ant. Coil	3Ω	0Ω		14-1044	
50	BC Osc. Coil		7Ω		14-1040	Fabricate mtg. bracket
51	SW Osc. Coil		0Ω		14-1046	
52	Input IF	14Ω	14Ω		16-8658	Drill new mtg. holes
53	Output IF	15Ω	15Ω		16-8660	

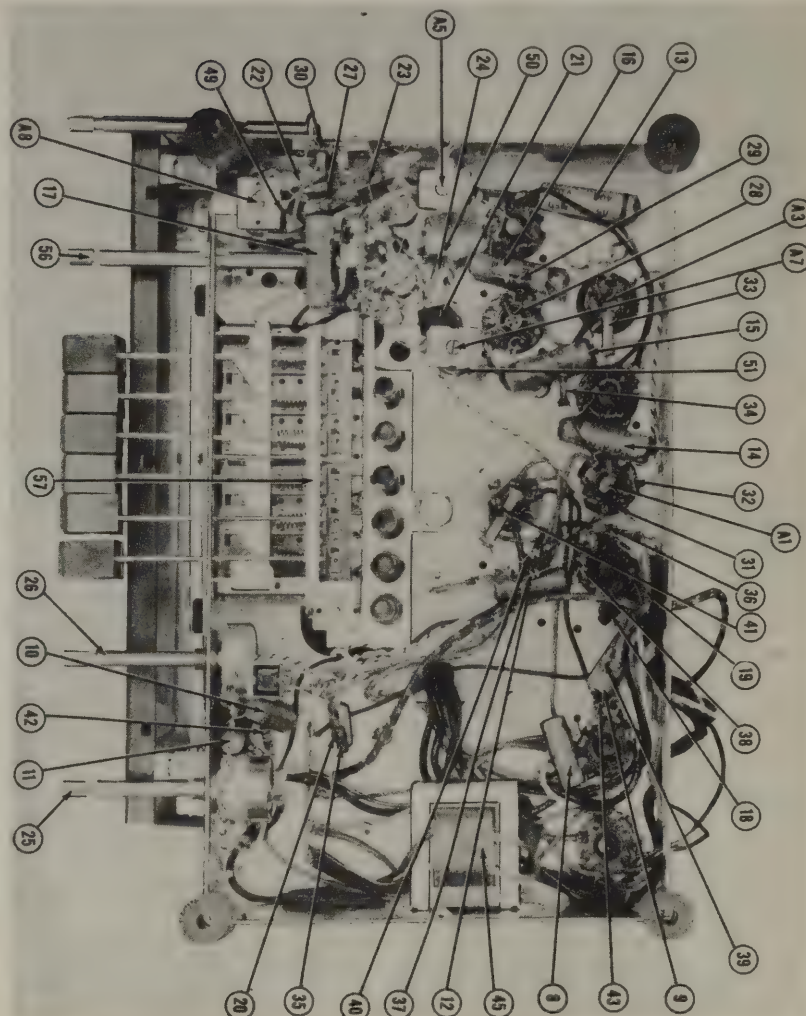
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MOTOROLA PART No.		
54	Bayonet	6-8	0.2	White			Type 51
55	"	6-8	0.2	"			"

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
56	Band Switch		
57	Push Button		Assembly
58	Tuning Cap.		2 Gang Variable Cap.

CHASSIS—BOTTOM VIEW



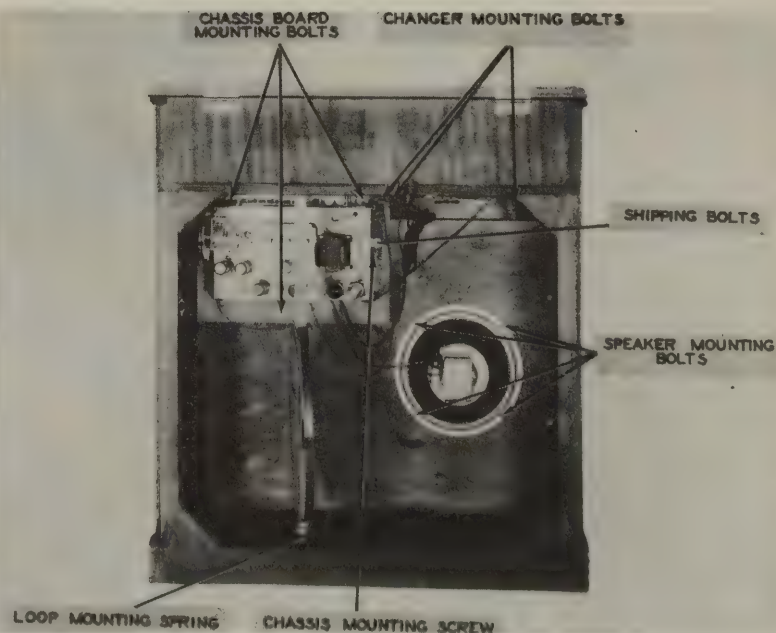
DISASSEMBLY INSTRUCTIONS

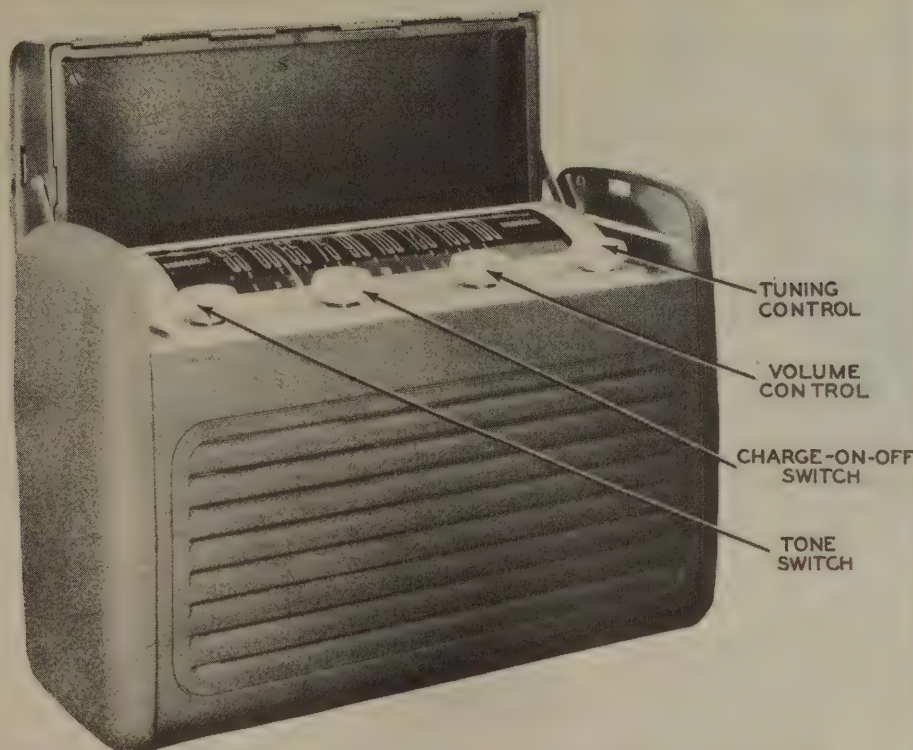
- 1 - Remove the following knobs: volume control, radio-phone tone switch, band switch, and tuning control.
- 2 - Remove screw from speaker plug.
- 3 - Remove speaker plug from speaker connection.
- 4 - Remove phono motor plug.
- 5 - Remove phono pickup plug.
- 6 - Remove antenna loop plug.
- 7 - Remove antenna white wire from antenna loop.
- 8 - Remove the two bolts and two clamps holding the chassis.
- 9 - Remove chassis.
- 10 - Remove the four screws holding the speaker to chassis.
- 11 - Remove the antenna loop from the two brackets.

PUSHBUTTON ADJUSTMENTS

The pushbuttons and associated adjustments from left to right (facing front of receiver) cover the frequency ranges as follows: 540 to 935KC, 600 to 1050KC, 650 to 1200KC, 650 to 1200KC, 750 to 1350KC, and 900 to 1600KC. To adjust proceed as follows:

- 1-With pushbutton, broadcast, shortwave switch in broadcast position, turn radio on and allow time for warm-up.
- 2-Tune in a desired station within the tuning range of the pushbutton to the left, and adjustments B1 and B2 (540 to 935KC).
- 3-Turn switch to pushbutton position and press in pushbutton on the left. Adjust B1 to tune in station selected above. Adjust B2 for maximum volume of station tuned in.
- 4-Follow the same procedure for the remaining pushbuttons. Always select station within tuning range of pushbutton. Adjust B3, B5, B7, B9, and B11 to tune in station and B4, B6, B8, B10, and B12 for maximum volume.





GENERAL ELECTRIC MODEL 250

TRADE NAME	General Electric Model 250
MANUFACTURER	General Electric Co., Bridgeport, Conn.
TYPE SET	Superheterodyne Receiver Which Operates From Rechargeable Battery or 105-125 Volts AC
TUBES (FIVE)	Types, 1LN5 RF Amp., 1LC6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 3Q5GT Power Output.
POWER SUPPLY	2 Volt Rechargeable Battery or 105-125V AC Rating - 1.6 Amps. @ 2 Volt DC
TUNING RANGE—BROADCAST	540-1600KC
	SHORT WAVE

ALIGNMENT INSTRUCTIONS

Front panel must be removed to connect output meter. After connecting, return panel to original position. Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to RF stator section of tuning gang. Low side to chassis.	455KC	Reference point below 550KC. (gang closed)	across voice coil (green lead and chassis)	A1,A2, A3,A4.	Adjust for maximum output.
	Loop (Output of signal gen. to loop of few turns of wire and radiate signal into rec'd loop.)	580KC	580KC	"	A5,A6.	Adjust for maximum output. Alternate between A5 and A6 several times for maximum.
	"	1500KC	1500KC	"	A7,A8, A9.	Adjust in order for maximum output. Rear cover closed and adjust through parts after removing snap buttons.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA STANDARD BASE TYPE	INSTALLATION NOTES
		GEN. ELECTRIC PART No.	REPLACEMENT PART No.		
1	500K 1	11N6	11N6	7AK	
2	IF amp.	11C6	11C6	7AK	
3	Det.-AVC-AF	11N6	11N6	7AK	
4	Power Output	11H4	11H4	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		GENERAL ELECTRIC PART No.	MALLORY PART No.	REPLACEMENT DATA			CORNELL-DUBILER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT			SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.		
5	.5	150	RCE-007	FP302	DY2x15-150/1200-1.5	EL-221	AF44D	UF22L15	Filter
6	.5	150				UHC1500			"
7	.5	1200		RF480		1122	HCLV12-1000	BRH310	Hash Filter
8	.5	120	RCC-070	RF480		1122		HC1900B	"
9	.5	120	RCC-039	RF480		1122		HC1900B	RF Filter
10	.003	1500	RCC-073	OM342	XTIMS10-.003	TR-23	1384-.003	MD15D3	Hash Filter
11	.05	400	RCC-028	TP425	S-4-1	TC-15	484-.05	DT43F1	Buffer
12	.05	400	UCC-033	TP425	S-4-1	TC-15	484-.05	DT43F1	Tone Compensation
13	.05	400	RCC-028	TP425	S-4-02	TC-15	484-.05	DT43S	Feedback
14	.02	300	UCC-041	TP412	S-6-02	TC-12	684-.02	DT632	3Q5 Plate Bypass
15	.005	600	UCC-039	TP403	S-6-005	TC-25	684-.005	DT635	Audio Coupling
16	.005	600	UCC-039	TP403	S-6-005	TC-25	684-.005	DT635	IF Screen Bypass
17	.05	400	RCC-028	TP425	S-4-1	TC-15	484-.05	DT43F1	Conv. Screen Bypass
18	.1	400	UCC-030	TP428	S-4-1	TC-15	484-.05	DT43F1	Conv. Plate Decoup.
19	.005	800	UCC-039	TP403	S-6-005	TC-25	684-.005	DT43S	RF Screen Bypass
20	.05	400	RCC-028	TP425	S-4-05	TC-15	484-.05	DT43S	AVC Filter
21	.05	400	RCC-028	TP425	S-4-05	TC-15	484-.05	DT43S	AVC Filter
22	100	500	UCU-028	MC235	MO-5-31	1FM-31	1438-.0001	5W5T1	Audio Plate Bypass
23	100	500	UCU-028	MC235	MO-5-31	1FM-31	1438-.0001	5W5T1	RF Bypass Diode
24	100	500	UCU-028	MC235	MO-5-31	1FM-31	1438-.0001	5W5T1	Osc. Grid Capacitor
25	9.5	500	UCN-506	4C241	MO-5-33	1FM-335	1468-.0003	5W5T3	RF Coupling

CONTROLS

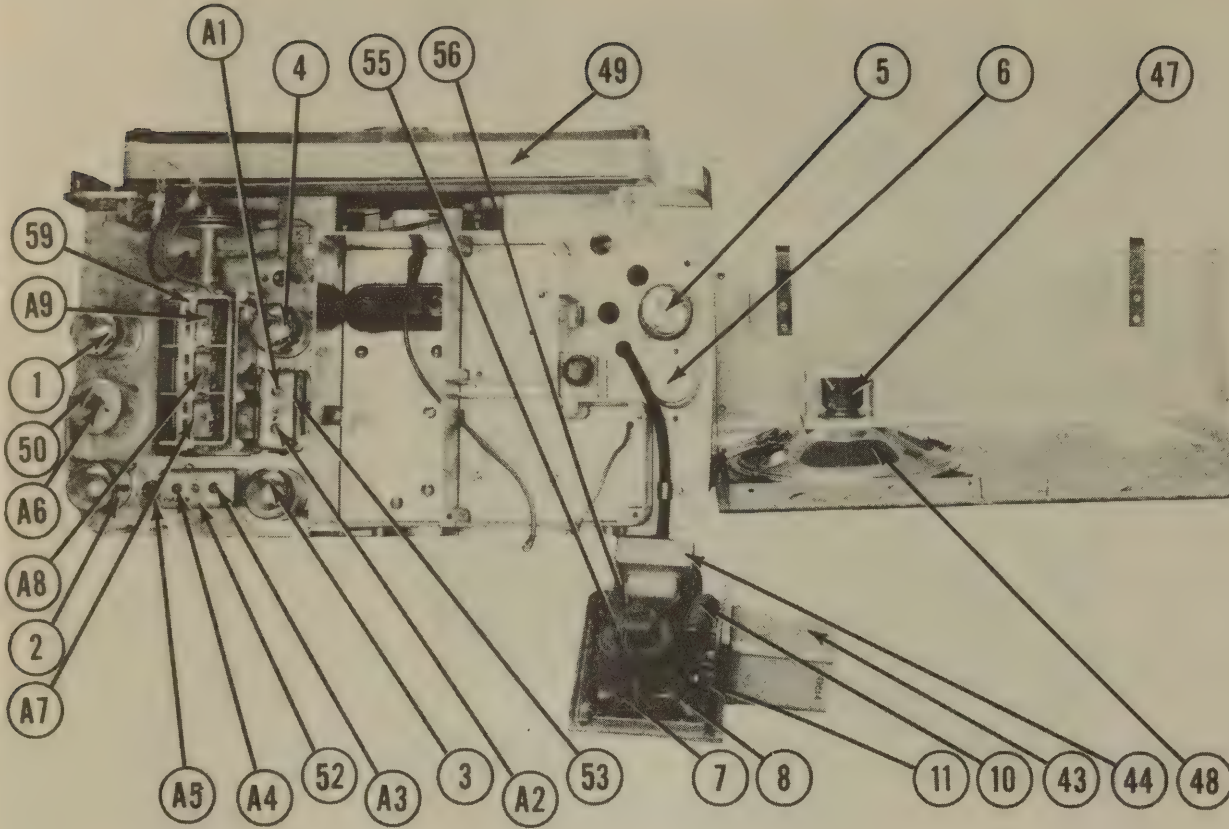
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		GEN. ELECTRIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
27	500K 1	RCC-038	MT401	D13-133	AM-60-Z	Volume Control
28	Shaft	Not Req.	Not Req.	E	KSS-5	Attach to 27A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		RESISTANCE	WATTS	GEN. ELECTRIC PART No.	IRC PART No.	
29	1 Meg.	220K		URD-121	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
30	47K	220K		URD-105	BTS-220K	Red-Red-Vl. Osc. Grid
31	22K	220K		URD-089	BTS-47K	Yl.-Vl.-Or. Mixer Screen Dropping
32	5600	220K		URD-081	BTS-22K	Red-Red-Or. Osc. Anode Decoupling
33	2.2 Meg.	220K		URD-067	BTS-5600	Grn.-Blue-Red IF Screen Dropping
34	47K	220K		URD-129	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
35	4.7 Meg.	220K		URD-069	BTS-47K	Yl.-Vl.-Or. Diode Load
36	220K	220K		URD-137	BTS-220K	Yl.-Vl.-Grn. 1st AF Grid
37	1 Meg.	220K		URD-121	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
38	1000	220K		URD-049	BTS-1000	Br.-Blk.-Red Tone Compensation
39	2700	220K		URD-057	BTS-2700	Red-Red-Red Tone Compensation
40	1500	220K		URE-059	BTS-1500	Red-Vl.-Red Feedback
41	1500	220K		URE-059	BTS-1500	Br.-Grn.-Red Filter
42	7.5	220K		RRG-001	BW-2-15	Vl.-Grn.-Gold Output Series Filament

*Connect the two (2) 15K resistors in parallel.

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW

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Diagram showing a vertical structure with numbered callouts: 9, 26, 28, 20, 25, and 21.

BATTERY INSTALLATION

The following instructions should be carefully followed in installing a battery:

- 1 - Remove battery from packing carton.

d water to bring liquid level to indicator mark

DO NOT OVERFILL.

- 3 - Raise back cover on radio, remove battery case cover. The latter is removed by unclipping the two catches. Pry off cover.
- 4 - Unplug battery and replace with new battery.
- 5 - Place battery on charge, if necessary, as described in a previous paragraph, until

- both indicators are showing in the opening in the case cover.

— 5 —

5 1/2 TURNS ON TUNING SHAFT

— 1 —

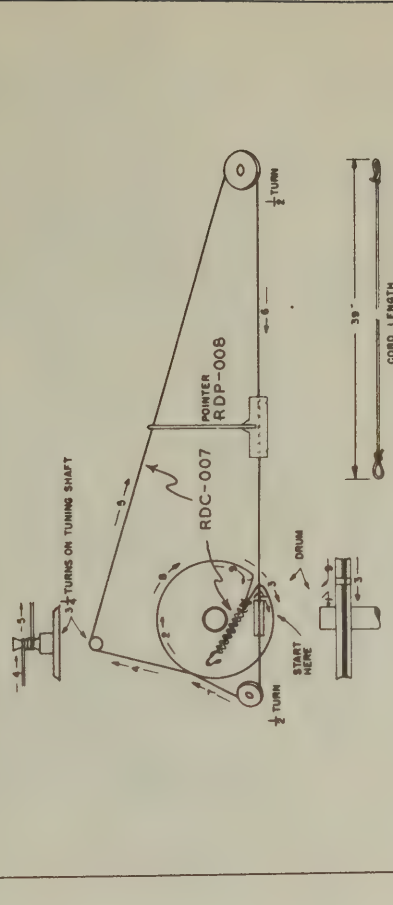
-
- Diagram illustrating the dial stringing process. The top part shows a drum with a string being wound around it. Labels include "START HERE" with an arrow pointing to the beginning of the string, and "DRUM" with an arrow pointing to the drum body. The bottom part shows a string with a loop at one end and a hook at the other, with a dimension line indicating a length of 39 inches and the text "CORD LENGTH".

BATTERY INSTALLATION

The following instructions should be carefully followed in installing a battery:

- 1 - Remove battery from packing carton.

- 2 - If needed, add water to bring liquid level to indicator mark on battery container. DO NOT OVERFILL.
- 3 - Raise back cover on radio, remove battery case cover. The latter is removed by unclipping the two catches. Pry off cover.
- 4 - Unplug battery and replace with new battery.
- 5 - Place battery on charge, if necessary, as described in a previous paragraph, until both indicators are showing in the opening in the case cover.



Dial Swinging Diagram

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		GEN. ELECT. PART No.	STANDARD REPLACEMENT		
1	5 amp. Converter	11L6	11L6	7A0	
2	1F amp. Det.-AFC-AF	11L6	11L6	7A0	
3	500W Output	11L4	3Q5GT	7A0	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		GEN. ELECT. PART No.	MALLORY PART No.	SOLAR PART No.	AEROVOX PART No.	
1	150 CAP. 150V	RCE-007	FF302	DY2X15-150/1200-1.5	AF44D	UP2215 Filter
2	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	BRH310 Hash Filter
3	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
4	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
5	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
6	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
7	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
8	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
9	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
10	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
11	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
12	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
13	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
14	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
15	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
16	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
17	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
18	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
19	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
20	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
21	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
22	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
23	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
24	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
25	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
26	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
27	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
28	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
29	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
30	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
31	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
32	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
33	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
34	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
35	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
36	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
37	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
38	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
39	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
40	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
41	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
42	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
43	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
44	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
45	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
46	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
47	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
48	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
49	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
50	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
51	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
52	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
53	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
54	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
55	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
56	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
57	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
58	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter
59	150 CAP. 150V	RCC-070	RF480	UHC1500	HCLV12-1000	HC1900B Hash Filter

CONTROLS

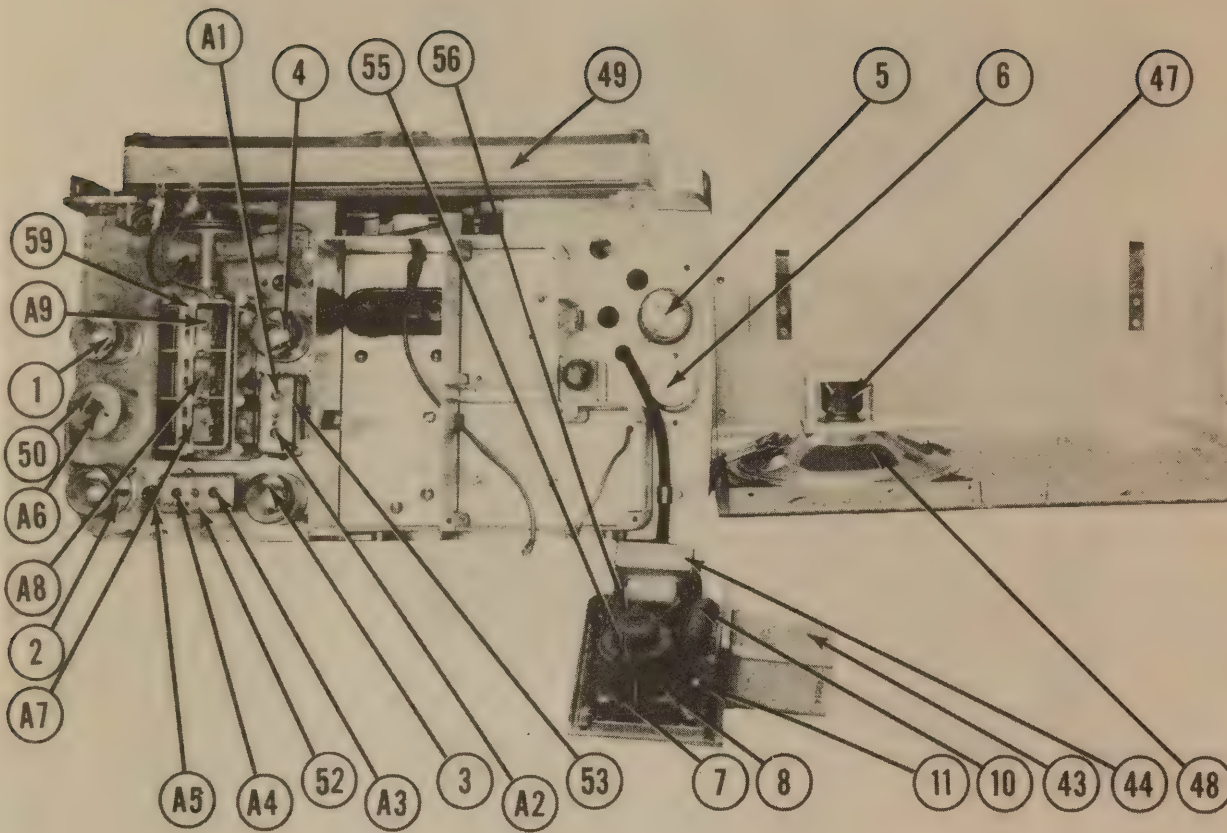
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		GEN. ELECT. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
1	500K 1	RCC-008	MX401	D13-133	AM-60-Z	Volume Control
2	500K 1	RCC-008	MX401	D13-133	KSS-3	Attach to 27A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		GEN. ELECT. PART No.	MALLORY PART No.	IRC PART No.	IRC PART No.	
1	1 deg.	URD-121	URD-121	WTS-1 Meg.	WTS-1 Meg.	Br.-Blk.-Grn. RF Grid
2	2 deg.	URD-121	URD-121	WTS-220K	WTS-220K	Red-Red-Yl. Osc. Grid
3	3 deg.	URD-121	URD-121	WTS-47K	WTS-47K	Yl.-Vl.-Or. Mixer Screen Dropping
4	4 deg.	URD-121	URD-121	WTS-22K	WTS-22K	Red-Red-Or. Osc. Anode Decoupling
5	5 deg.	URD-121	URD-121	WTS-5600	WTS-5600	Grn.-Blue-Red IF Screen Dropping
6	6 deg.	URD-121	URD-121	WTS-2-2 Meg	WTS-2-2 Meg	Red-Red-Grn. AVC Network
7	7 deg.	URD-121	URD-121	WTS-47K	WTS-47K	Yl.-Vl.-Or. Diode Load
8	8 deg.	URD-121	URD-121	WTS-47K	WTS-47K	Yl.-Vl.-Or. 1st AF Grid
9	9 deg.	URD-121	URD-121	WTS-220K	WTS-220K	Br.-Blk.-Grn. 1st AF plate Load
10	10 deg.	URD-121	URD-121	WTS-1 Meg.	WTS-1 Meg.	Br.-Blk.-Grn. Output Grid
11	11 deg.	URD-121	URD-121	WTS-1000	WTS-1000	Br.-Blk.-Red Tone Compensation
12	12 deg.	URD-121	URD-121	WTS-2200	WTS-2200	Red-Red-Red Tone Compensation
13	13 deg.	URD-121	URD-121	WTS-2700	WTS-2700	Red-Vl.-Red Feedback
14	14 deg.	URD-121	URD-121	WTS-1500	WTS-1500	Br.-Grn.-Red Filter
15	15 deg.	URD-121	URD-121	WTS-15	WTS-15	Vl.-Grn.-Gold Output Series Filament
16	16 deg.	URD-121	URD-121	WTS-001	WTS-001	(2 Req.)

*Connect the two (2) 150 resistors in parallel.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				GEN. ELECTRIC PART No.	MALLORY PART No.	RADIART PART No.	
43	Synchronous	2.05	115	REU-001			

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	GEN. ELECTRIC PART No.	STANCOR PART No.	THORDASON PART No.	
44	2.05 VDC @ 1.6A	300 VCT @ .18A			RTV-001			

TRANSFORMER (CHARGING)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTE:
	PRI.	SEC. 1	SEC. 2	SEC. 3	GEN. ELECTRIC PART No.	STANCOR PART No.	THORDASON PART No.	
45	117VAC @ .09A	5.6VCT @ 1.6A			RTC-001	T-19F81T		Requires bracket to mount transformer horizontally.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI.	SEC.	GEN. ELECTRIC PART No.	STANCOR PART No.	THORDASON PART No.	
46	13,000	3.72	330	.352	RTO-007	A-3831	T-13840	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	GEN. ELECT. PART No.	JENSEN PART No.	
47	PM	3.72	UOP-009		
48	CONE DIA.	VC DIA.	NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT		
	5-3/16"	1/2"			

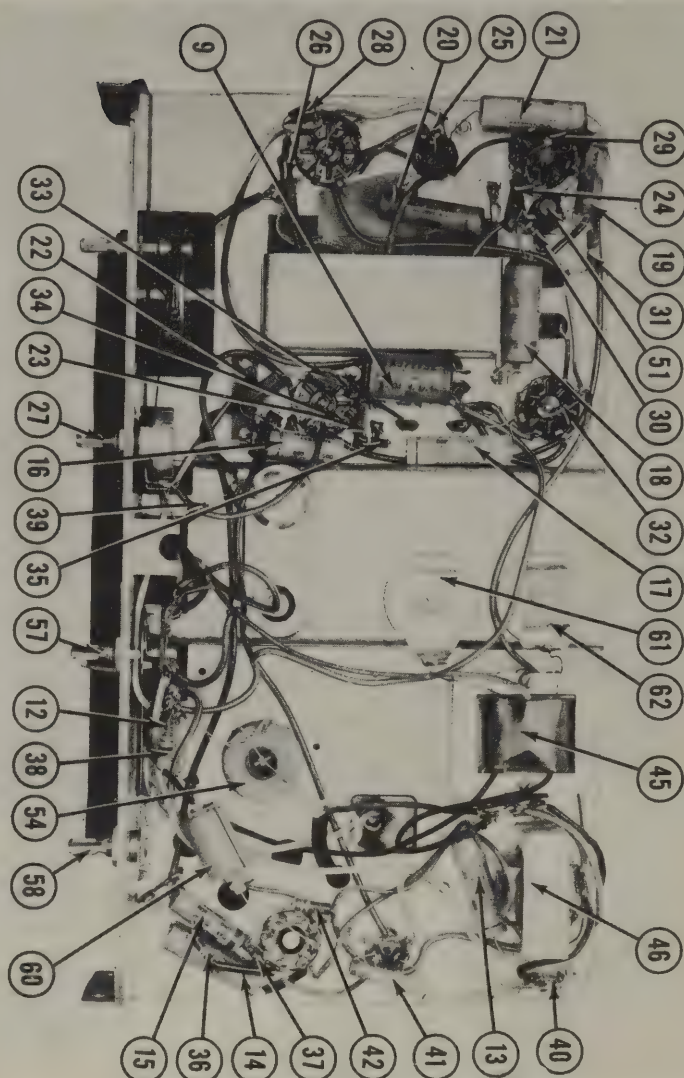
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	GEN. ELECT. PART No.	MEISSNER PART No.	
49	Loop Ant.		1.52	RL-003		
50	Rf Coil	105	42	RL-002		
51	Osc. Coil	.52	3.52	RL-008		
52	Input IF	7.52	6.22	RTL-011		
53	Output IF	7.32	7.52	RTL-012		
54	Fl. Choke	4.22	4.22	RLF-002		
55	Vib. Choke	22		RLF-001		
56	Choke	5.22		RLF-001		

MISCELLANEOUS

ITEM No.	PART NAME	GEN. ELECT. PART No.	NOTES
57	Switch	FSW-003	Power Selector
58	"	RSW-010	Tone
59	Tuning Cap.	RCT-008	3 Gang Variable Cap.
60	Diode Cell	RBC-001	
61	Rectifier	REX-001	Copper Oxide
62	"	REX-001	"
	Knob	RDK-020	Control (plain)
	"	RDK-021	" (pointer)
	Dial Scale	RDS-013	
	Fuse	REF-001	3AG 1/2 Amp.

CHASSIS—BOTTOM VIEW

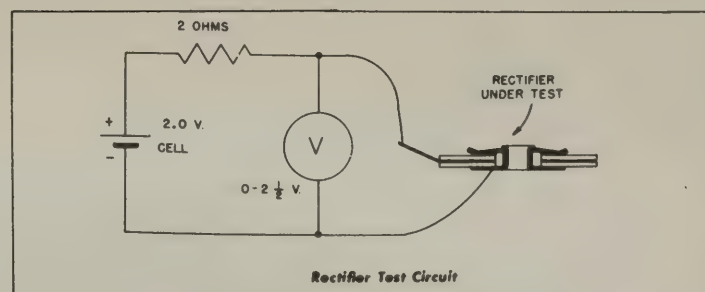


DISASSEMBLY OF PORTABLE GENERAL ELECTRIC MODEL 250 FOR SERVICE

- 1 - Remove the push-on volume, tone, charge-off-on, and dial tuning knobs.
- 2 - Remove three bolts from bottom of case holding chassis to case.
- 3 - Remove four Phillips head screws from the two side panels inside the top cover.
- 4 - Remove four Phillips head screws from the dial panel.
- 5 - Remove front and bottom panel assembly.

SERVICE POWER SUPPLY

Remove three flat head screws on top of die-cast plate. Pry the lid from the power supply compartment and lift it straight outward. All of the power supply components are attached to the lid and will come out with it as far as the connecting leads will permit. In replacing this cover, be careful not to short circuit the \pm lead.



TESTING THE INDIVIDUAL RECTIFIER DISCS

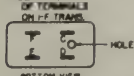
Two rectifier assemblies are used in the receiver, each assembly consisting of two rectifier discs held together by an eyelet. A cross section of a rectifier assembly is shown above. The center plate of the assembly is positive and is provided with a soldering tab. A copper-oxide rectifier disc is located on each side of the center plate. The rectifier disc conducts when the positive potential is applied to the copper-oxide surface. The copper oxide is a dark purple coating which has been plated with nickel to afford a good surface contact to the copper-oxide. If either or both of the rectifier discs in an assembly become defective, the entire assembly should be replaced.

To check the rectifier assembly, the following tests are recommended. In the conducting direction, the rectifier assembly should pass 0.5 ampere or more when $\frac{1}{2}$ volt is impressed across it. If a d-c ammeter is not available for measuring currents as high as 0.65 ampere, the circuit shown above can be used for this check. The 2.00 ohm resistance should be fairly accurate. The voltage across the rectifier assembly should read 0.7 volt or less; if this voltage exceeds 0.7 volt, the assembly is defective and should be replaced.

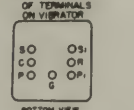
The reverse current flow is as important as the above test and is made as follows: Reverse the battery polarity in the test circuit described for current check, disconnect the voltmeter, and place a milliammeter that will read 10 ma. in series with a lead to one of the battery terminals. A suitable meter fuse should be used in series with the milliammeter to prevent damage to the meter in case the assembly under test is shorted. The reverse current should not exceed 10 ma. If the current is considerably above this value, the rectifier assembly should be discarded.

If a milliammeter is not available, a rough check may be made by measuring the resistance of the assembly in the nonconducting direction on the low-resistance range of an ohmmeter. The resistance should measure at least 300 ohms.

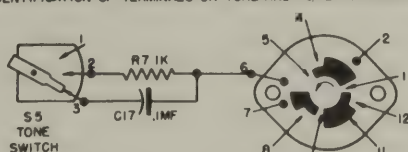
IDENTIFICATION OF TERMINALS ON T-TRANS.



IDENTIFICATION OF TERMINALS ON VIBRATOR



IDENTIFICATION OF TERMINALS ON TONE AND POWER SWITCHES



VIEWED FROM REAR OF RADIO, BOTH SWITCHES IN EXTREME COUNTER-CLOCKWISE POSITION.

BATTERY INFORMATION

The receiver uses a 2-volt Willard Radio battery No. 25-2 or equivalent. It has a 25-ampere-hour capacity and should be cared for in the same manner as any other storage battery.

CHARGE INDICATOR

The degree of charge of the battery can be determined by raising the back cover of the radio and referring to the charge ball indicators visible through the hole in the metal battery case.

If the battery is fully charged, two indicator balls will be visible at the surface of the liquid in the battery. When the battery discharges, these ball indicators will sink and disappear in the following order:

- 1 - Green indicator sinks when approximately 20% of battery capacity has been discharged.
- 2 - The red ball sinks when battery is 80% discharged. On charge, the balls rise or float in the reverse order and the charge is complete and may be stopped when both balls appear in the opening.

TO CHARGE BATTERY

The battery is charged by merely plugging the receiver power cord in the rated a-c power outlet and turning the selector switch to CHARGE. Frequent check should be taken of the charge indicator and when both indicator balls are visible, the battery is fully charged. Charging the battery after all indicator balls are visible will not harm the battery except that it will evaporate the water faster. A completely discharged battery will be restored usually within 20 to 30 hours.

When operating the receiver from the a-c house current the battery floats or is being charged at a slow rate. Thus, if you wish to operate the receiver at the same time that you are charging even a fully discharged battery, plug the power cord in the a-c receptacle and turn the power selector switch to the ON position. Prolonged and repeated operation on this position will assure that the battery is always maintained in a nearly fully charged condition.

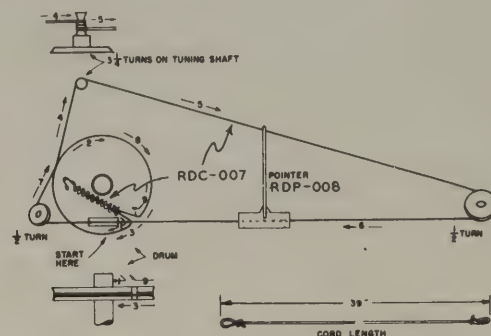
BATTERY OPERATING INSTRUCTIONS

- 1 - Add distilled or tap water in the filler cap at sufficiently frequent intervals to keep liquid level at indicator mark as viewed through opening in battery case. DO NOT OVER-FILL as this impairs nonspill feature.
- 2 - A fully charged battery will operate the radio in the ON position without being connected to a-c outlet for about 20 hours before recharging is required. Whenever possible, it is best not to allow the battery to become discharged to the extent that both indicators disappear. However, if both indicators have sunk, the battery should be recharged immediately or within 24 hours.
- 3 - A battery will continually discharge at a slow rate even when not in use. For this reason, monthly checks should be made of the charge condition and the battery placed on charge when necessary. This will prevent damage to the battery such as freezing during cold weather.

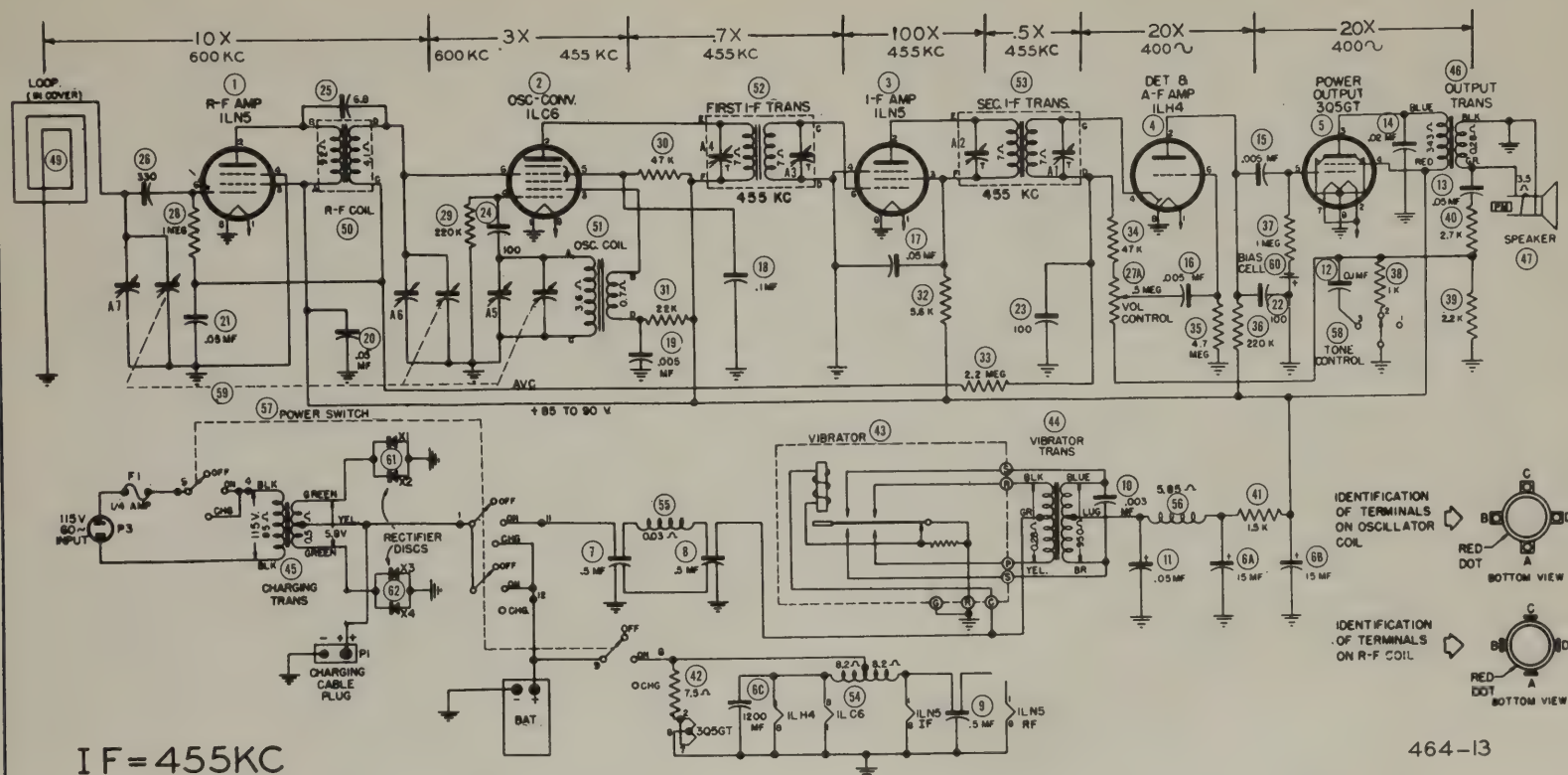
BATTERY INSTALLATION

The following instructions should be carefully followed in installing a battery:

- 1 - Remove battery from packing carton.
- 2 - If needed, add water to bring liquid level to indicator mark on battery container. DO NOT OVERFILL.
- 3 - Raise back cover on radio, remove battery case cover. The latter is removed by unclipping the two catches. Pry off cover.
- 4 - Unplug battery and replace with new battery.
- 5 - Place battery on charge, if necessary, as described in a previous paragraph, until both indicators are showing in the opening in the case cover.



Dial Stringing Diagram



IF = 455KC

464-13

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LN5	1.3V.DC	88V.DC	88V.DC	OV.	OV.	OV.	OV.	OV.
2	1LC6	OV.	88V.DC	45V.DC	OV.	40V.DC	OV.	OV.	1.32VDC
3	1LN5	1.3V.DC	78V.DC	78V.DC	OV.	OV.	OV.	88V.DC	OV.
4	1LH4	1.32VDC	77V.DC	OV.	OV.	OV.	OV.	OV.	OV.
5	3Q5GT	2.05VDC	1.3V.DC	85V.DC	88V.DC	-6V.DC	-2.6V.DC	1.3V.DC	OV.

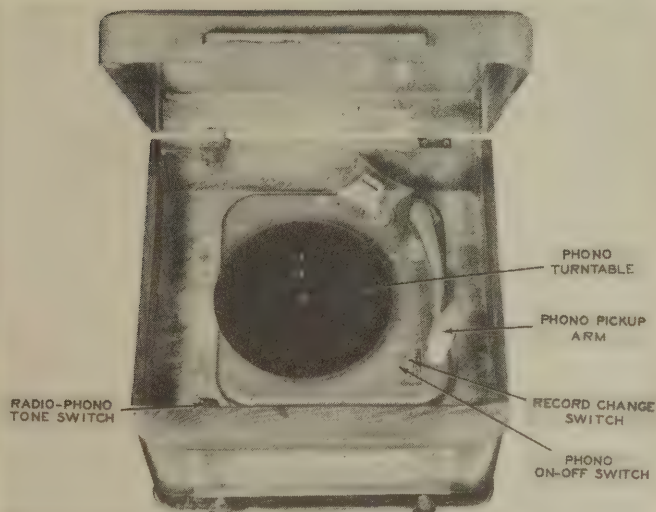
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LN5	35 Ω	1.2MEG	1.2MEG	0 Ω	0 Ω	3.5MEG	2.6MEG	OV.
2	1LC6	0 Ω	1.2MEG	1.2MEG	215K Ω	1.25MEG	2.6MEG	1NF	3.5 Ω
3	1LN5	3.5 Ω	1.2MEG	1.2MEG	0 Ω	0 Ω	0 Ω	1.2MEG	0 Ω
4	1LH4	3.5 Ω	1.4MEG	2.6MEG	500K Ω	500K Ω	5.5MEG	460K Ω	0 Ω
5	3Q5GT	2 Ω	2.75 Ω	1.2MEG	1.2MEG	900K Ω	35K Ω	2.75 Ω	0 Ω

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MOTOROLA
MODEL 55F11



MOTOROLA
MODEL 55F11

MOTOROLA MODEL 55F11

TRADE NAME Motorola Model 55F11 (Chassis HS-30)
MANUFACTURER Galvin Mfg. Corp., 4545 Augusta Blvd., Chicago, Illinois
TYPE SET AC Combination Auto. Phono & Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (FIVE) Types, 7Q7 Converter, 7A7 IF Amp., 7B6 Det.-AVC-AF, 7B5 Power Output, 5Y3GT Rectifier.

POWER SUPPLY 117 Volt AC

TUNING RANGE—BROADCAST 535-1620KC

RATING - .485 Amps. @ 117V AC
SHORT WAVE

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to ant. stator section of tuning gang. Low side to chassis.	455KC	Low freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
"	"	1650KC	High freq. end of dial. Rotors out of mesh.	"	A5	" " " "
	Loop	1400KC	Tune in 1400 KC signal.	"	A6	Adjust for maximum output. Connect generator output to loop of few turns of wire and radiate signal into receiver loop.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
1	Converter	7C7	7C7	8AL	
2	IF Amp.	7A7	7A7	8W	
3	Det.-AFC-AF	7B6	7B6	8W	
4	Power Output	7B6	7B6	8AE	
5	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MOTOROLA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	30	23A74827	FP331	DY-2X30-350/50-50	AF32K4A	UP6BJ38 ■ Filter
6B	30					
7	20					
8	25	889813-D	TP408	S-6-005	TC-25	BR202A 7B5 Plate Bypass
9	0.005					DP6D5 7D6D5
10	0.05					DP4S5 7D4S5
11	0.005	889813-D	TP408	S-6-005	TC-25	7B5 Plate Bypass
12	0.05					DP6D5 7D6D5
13	0.05					DP4S5 7D4S5
14	0.05					DP4S5 7D4S5
15	500	MC245	MO-5-35	1FM-35	1468--0005	SW576 Audio Plate Bypass
16	100	MC235	MO-5-31	1FM-31	1468--0001	SW571 Phono Coupling

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MOTOROLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	1 Meg.	18A70032-A	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft	Not Req.	Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch		M26	41	SW-A	

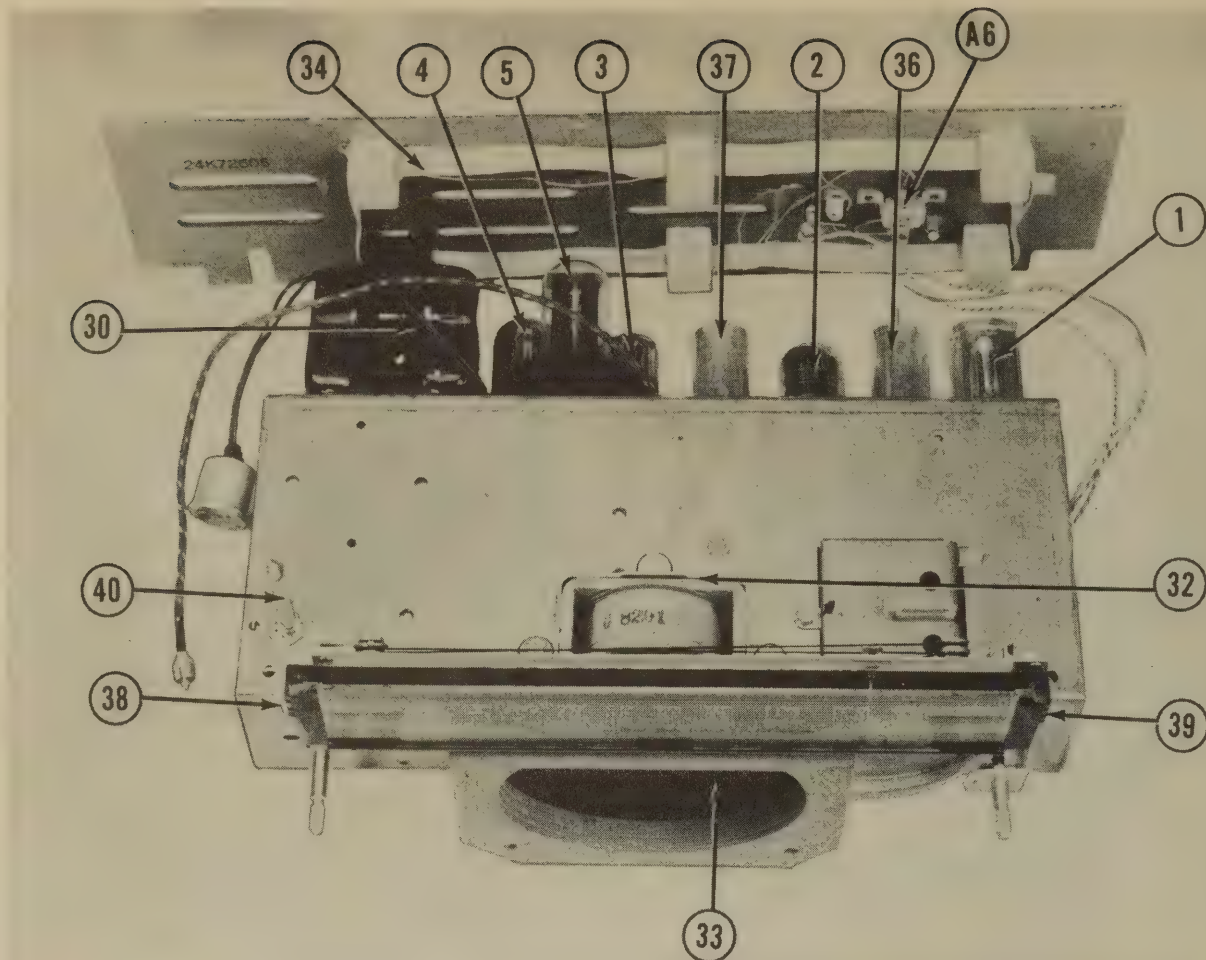
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		MOTOROLA PART No.	IRC PART No.	
18	22K		BTS-22K	Red-Red-Or. Osc. Grid
19	180K		BW-1-180	Br.-Gray-Br. Osc. Cathode
20	2.2 Meg.		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
21	22K		BTS-22K	Red-Red-Or. Screen Dropping
22	1000K		BTS-1000	Br.-Blk.-Red Plate Filter
23	4.7 Meg.		BTS-4.7 Meg.	Yl.-Yl.-Grn. 1st AF Grid
24	220K		BTS-220K	Red-Red-Yl. 1st AF Plate Load
25	470K		BTS-470K	Yl.-Yl.-Yl. Output Grid
26	270K		BW-1-270	Red-Vl.-Br. Fixed Bias
27	15K		BW-1-15	Br.-Grn.-Blk. Diode Load
28	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. Diode Load
29	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. Phono Load

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	MOTOROLA PART No.	STANCOR PART No.	
30	117VAC @ .48A	550V CT 5V @ .054A	6.3V @ 2.0A	25821248	P-6119# T-13R11#	Use the universal mounting brackets supplied with this unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	MOTOROLA PART No.	THORNDYKE PART No.	
31	87502	5Ω	25B21175	A-3856	*Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC IMP.	MOTOROLA PART No.	JENSEN PART No.	
32	1275Ω	3Ω	50B71732	ST-4491	†Improvise mounting bracket.
33	5"	3/4"	NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
34	Loop Ant.	3Ω	0.5Ω	24K72505	14-1040	Drill mtg. holes Drill mtg. holes
35	Osc. Coil	18Ω	14.8Ω		16-6668	
37	Output IF	15.5Ω	16.2Ω		16-6667	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	MOTOROLA PART No.	
36	Bayonet	6-8	0.25	Blue		Type 44
39	"	3-8	0.25	"		

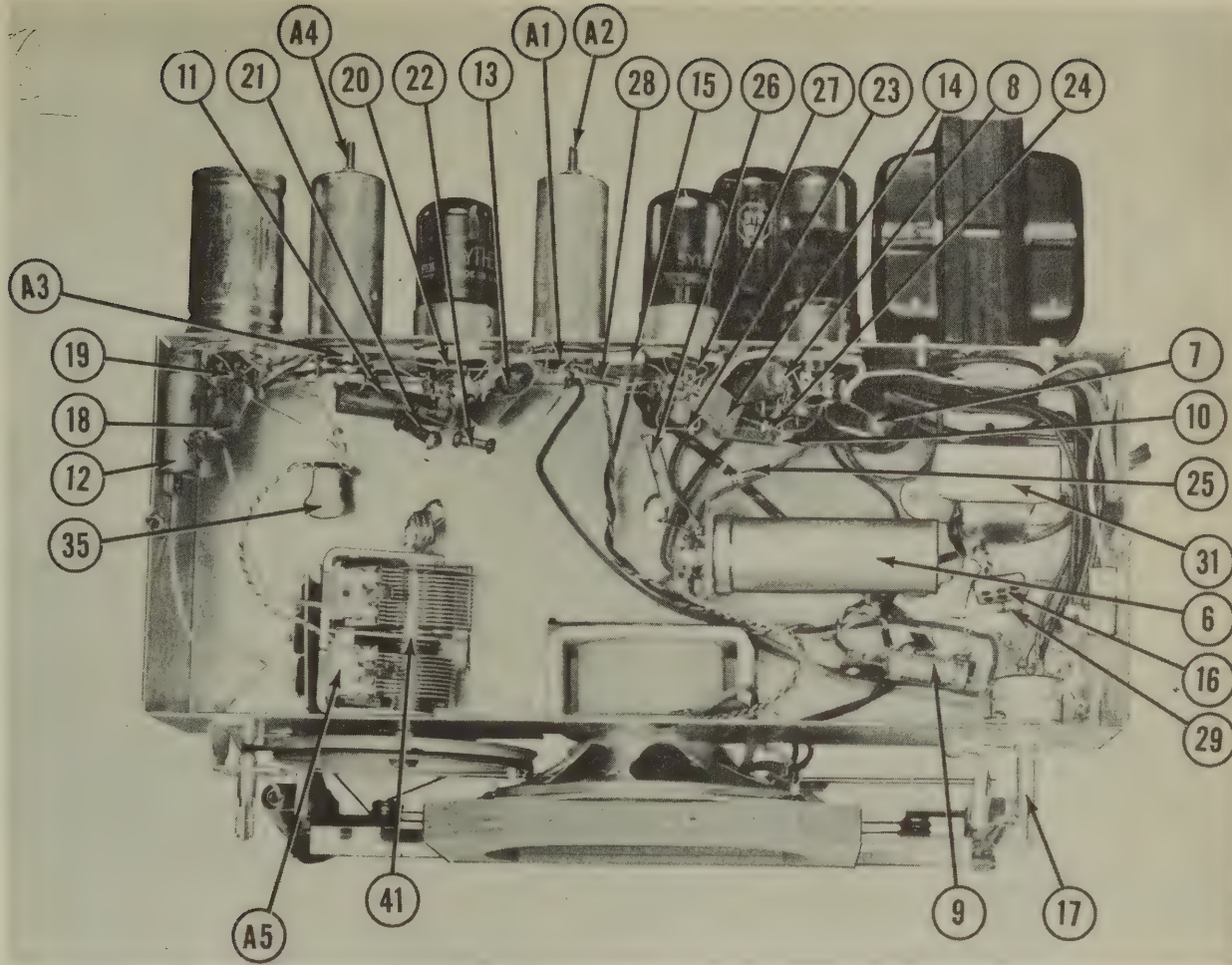
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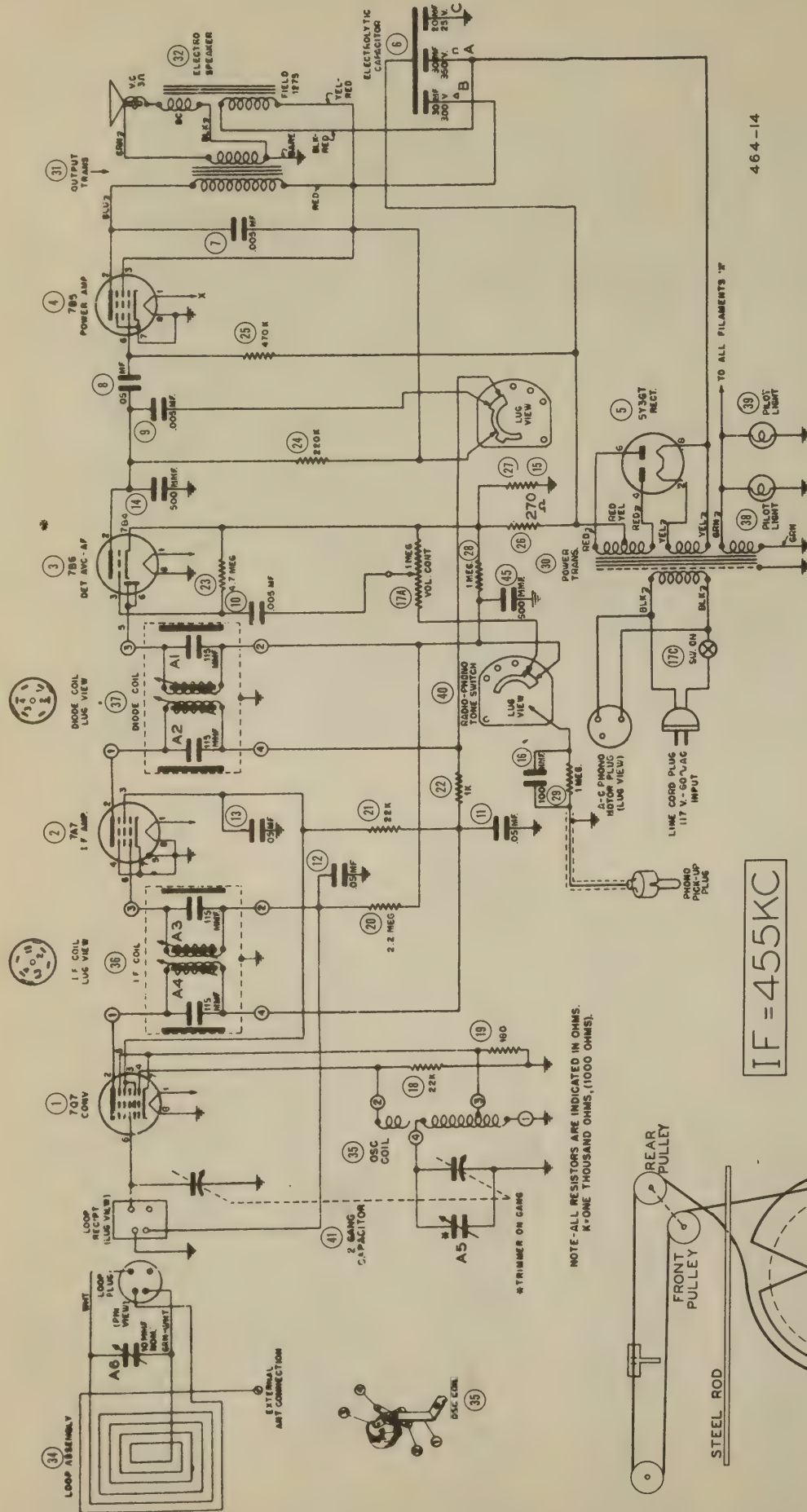
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
40	Switch		Radio - Phono - Tone
41	Tuning Cap.		2 Gang Variable Cap.

DISASSEMBLY INSTRUCTIONS

- 1 - Remove volume control, tuning control, and radio-phonograph switch push-on type knobs.
- 2 - Disconnect antenna plug from chassis.
- 3 - Remove six screws holding antenna loop to cabinet. Remove antenna.
- 4 - Disconnect phono-motor plug.
- 5 - Disconnect phono pick-up plug from changer base.
- 6 - Remove 7 screws from bottom of cabinet and lift out chassis.
- 7 - Remove 2 screws holding chassis board to chassis. Remove chassis board.

CHASSIS—BOTTOM VIEW





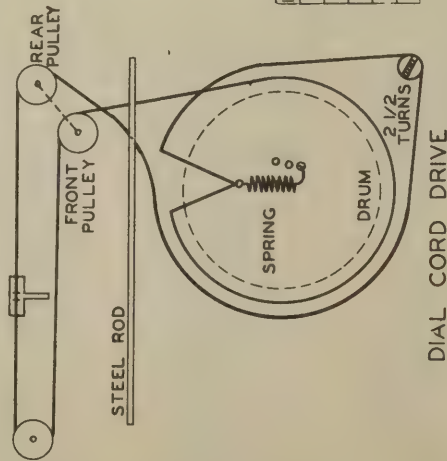
IF = 455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	707	6.3VAC	220VDC	67VDC	-1.7VDC	OV.	OV.	OV.	OV.
2	7A7	6.3VAC	237VDC	67VDC	OV.	OV.	OV.	OV.	OV.
3	7B6	6.3VAC	11.2VDC	-1.2VDC	-1.2VDC	-1.2VDC	-1.2VDC	-1.2VDC	-1.2VDC
4	7B5	6.3VAC	220VDC	237VDC	1.2VDC	OV.	OV.	OV.	OV.
5	5Y3GT	OV.	300VDC	OV.	295VAC	OV.	295VAC	OV.	300VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	707	OV.	OV.	170 K Ω	24 K Ω	1.2 Ω	3 MEG	1.2 Ω	0 Ω
2	7A7	OV.	OV.	150 K Ω	170 K Ω	0 Ω	3 MEG	0 Ω	0 Ω
3	7B6	OV.	OV.	370 K Ω	4 MEG	14 Ω	450 K Ω	450 K Ω	0 Ω
4	7B5	OV.	OV.	150 K Ω	150 K Ω	800 K Ω	540 K Ω	0 Ω	0 Ω
5	5Y3GT	OV.	OV.	150 K Ω	150 K Ω	520 Ω	540 Ω	150 K Ω	150 K Ω

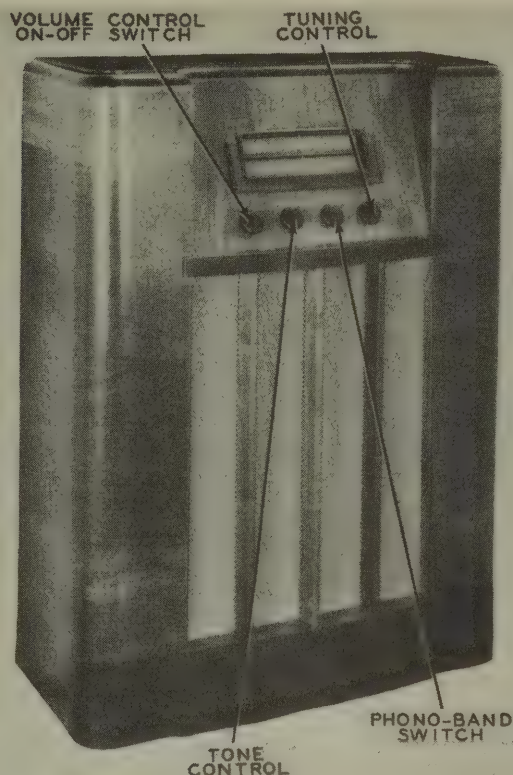


Stage gain measurements are omitted at the request of the manufacturer.

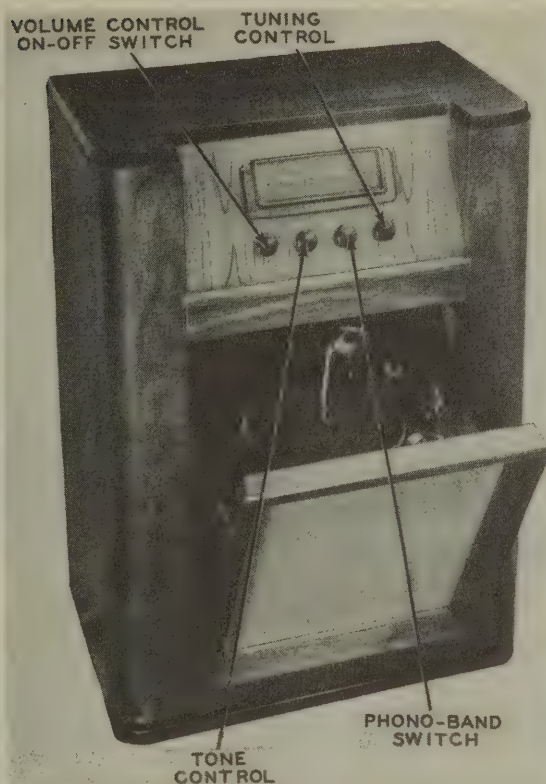
- 1 - DC Voltage measurements are at 20,000 ohms per volt: AC
- 2 - Voltages measured at 1000 ohms per volt.
- 3 - Socket connections are shown as bottom views.
- 4 - Measured values are from socket pin to common negative.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

AIRLINE
MODEL 54 WG-2500A, 54 WG-2700A



AIRLINE MODEL 54WG-2500A



AIRLINE MODEL 54WG-2700A

TRADE NAME Airline Models 54WG-2500A, 54WG-2700A MANUFACTURER Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill. TYPE SET AC Operated 2 Band Superheterodyne Radio - Self Contained Loop Antenna, Model 54WG-2700A has Automatic Phono. TUBES (SEVEN) Types, 6SJ7 1st Det., 6J5 Oscillator, 6SK7 1st IF Amp., 6SK7 2nd IF Amp., 6SQ7 Det.-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier. POWER SUPPLY 105-125 Volts AC RATING .510 Amps. @ 117V AC TUNING RANGE—BROADCAST 528-1600KC SHORT.WAVE 5.75-18.3MC							
ALIGNMENT INSTRUCTIONS Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading.—Use insulated alignment screwdriver for adjusting.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #4 (grid) 6SJ7. Low side to chassis.	455KC	BC B Range	Turn rotor to full open	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
100 MMFD	High side to ant. lead. Low side to chassis.	1600KC	"	"	"	A5	" " " "
"	"	1400KC	"	Tune in 1400 KC signal.	"	A6	" " " "
"	"	600KC	"	Tune in 600 KC signal.	"	A7	Rock rotor and adjust for maximum output. Repeat adjustments A5 at 1600KC and A7 at 600KC until there is no improvement in output.
400Ωres.	"	18.3MC	SW D Range	Turn rotor to full open	"	A8	Adjust for maximum output
"	"	17MC	"	Tune in 17MC signal.	"	A9	Rock rotor and adjust for maximum output.
100 MMFD	"	1400KC	BC B Range	Tune in 1400 KC signal.	"	A6	With chassis reassembled in cabinet adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RVA BASE TYPE	INSTALLATION NOTES
		AIRLINE PART No.	STANDARD REPLACEMENT		
1	1st Det.	6SJ7	6SJ7	8N	
2	Osc.	6J5	6J5	6Q	
3	1st IF Amp.	6SK7	6SK7	8N	
4	2nd IF Amp.	6SK7	6SK7	8N	
5	Det.-AVC-AF	6SC7	6SC7	8Q	
6	Power Output	6V6GT	6V6GT	7AC	
7	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		AIRLINE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
8A	40	45X277	TC78	M-40-450	UT-30	Filter - Red
9	20		TC78	M-20-450	UT-30	" - White
10	.003	D66203	TP406	S-6-003	TC-23	6V6 Plate Bypass
11	.004	B66402	TP407	S-6-004	TC-24	Tone Compensation
12	.004	B66254	TP430	S-4-25	TC-2	Bias Filter
13	.02	D66203	TP423	S-4-03	TC-12	Audio Coupling
14	.01	B66103	TP421	S-4-01	TC-11	"
15	.04	D66403	TP425	S-6-04	TC-14	Screen Bypass
16	.02	B66203	TP423	S-4-02	TC-12	RF Screen Bypass
17	.05	B66503	TP426	S-4-05	TC-15	AVC Filter
18	.02	B66203	TP423	S-4-02	TC-12	Osc. Feedback
19	.02	B66203	TP423	S-4-02	TC-12	Cath. Coupling
20	.0005	D66501	TP403	S-6-0005	TC-35	RF Coupling
21	.00475	46X259	MC240	M0.5-325	1PM-325	Fixed Radder
22	220	47X468	MC225	M0.5-45	1PM-45	Audio Plate Bypass
23A	50	47X112	MC225	M0.5-45	1PM-45	Diode Filter
24	10	47X477	MC215	M0.5-41	1PM-41	IF Coupling
25	47	47X463	MC225	M0.5-45	1PM-45	Osc. Grid Capacitor
26	20	47X482				Fixed Trimmer
27	4.7	47X478				Osc. Coupling

Use exact replacement, a .005 may be used with a loss of sensitivity and calibration on SW

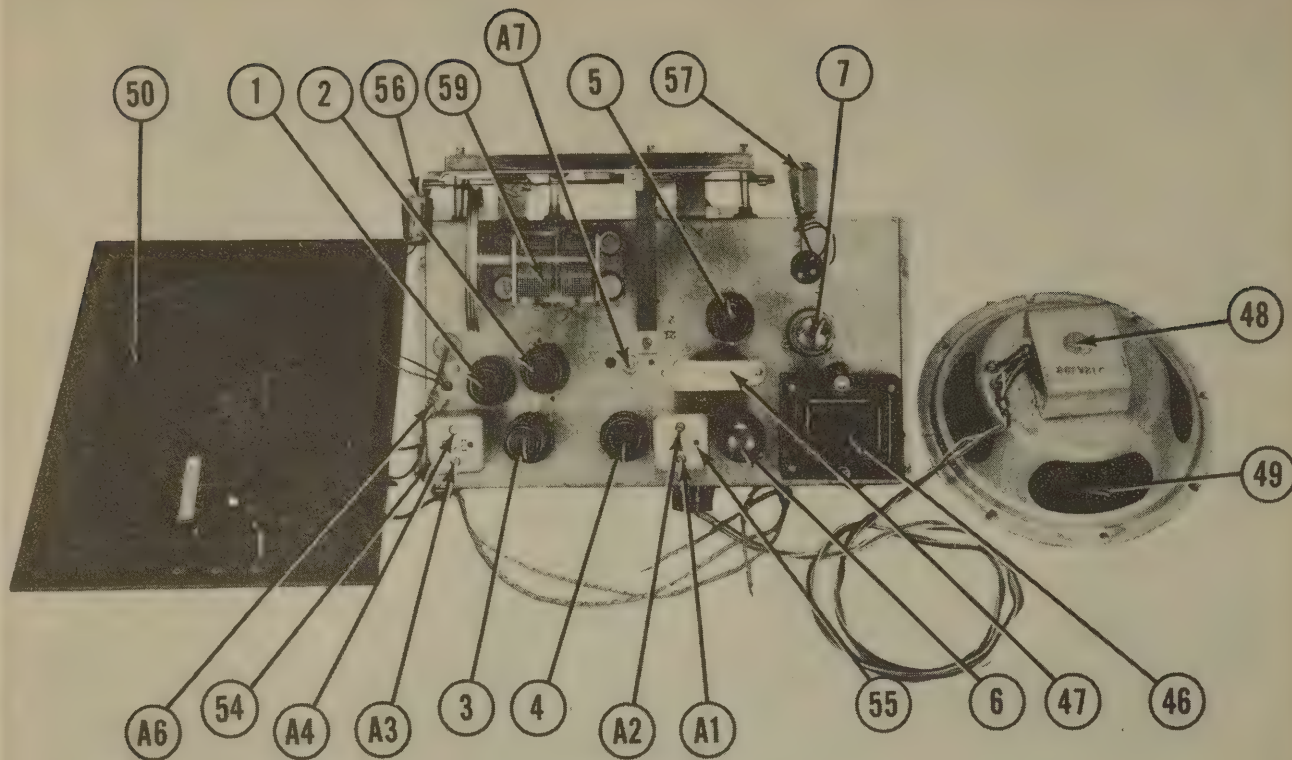
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIRLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
28A	500KΩ	36X311	MK401	D13-133	AM-60-Z	Volume Control
B	Shunt	Not Req.	Not Req.	E	KSS-3	Attach to 28A per instructions
29A	3 Meg.	40X259	UM165	D13-140	AM-67-Z	Tone Control
B	Shunt	Not Req.	SS25	E	KSS-3	Attach to 29A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		AIRLINE PART No.	IRC PART No.	
30	2.2 Meg.	B85225	BTS-2.2 Meg.	Red-Red-Grn. 1st Detector Grid
31	220Ω	B84222	BTS-220Ω	Red-Red-Red. 1st Detector Cathode
32	10KΩ	B84103	BTA-10K	Br.-Blk.-Or. Osc. Plate Load
33	39KΩ	B84393	BTS-39K	Or.-White-Or. Osc. Grid
34	68KΩ	B84683	BTS-68K	Blue-Gray-Or. Osc. Grid
35	2.2 Meg.	B85225	BTS-2.2 Meg.	Red-Red-Grn. Screen Dropping
36	2700Ω	B84272	BTS-2700	Red-Red-Grn. AVC Network
37	1 Meg.	B85105	BTS-1 Meg.	Br.-Blk.-Grn. 2nd IF Grid
38	39KΩ	B85393	BTA-39K	Or.-White-Or. Screen Dropping
39	220Ω	B85221	BW-2-220	Red-Red-Br. Diode Load
40	47KΩ	B85473	BTS-47K	Yl.-Vl.-Or. Filter
41	4.7 Meg.	B85475	BTS-4.7 Meg.	Yl.-Vl.-Grn. 1st AF Grid
42	470KΩ	B85474	BTS-470K	Yl.-Vl.-Yl. 1st AF Plate Load
43	320KΩ	B85324	BTS-320K	Or.-Or.-Yl. Output Grid
44	620KΩ	B85624	BTS-620K	Blue-Red-Yl. Voltage Divider Bias
45	91KΩ	B83913	BTS-100K	White-Br.-Or. Voltage Divider Bias

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	AIRLINE PART No.	STANCOR PART No.	
46	117 VAC 6.10VCT 5.1A 0.082A 1.8A 2.25A	5.1VAC	6.4VAC	53X235	P-5011†	T-13R20† Use universal mounting brkts.

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		AIRLINE PART No.	STANCOR PART No.	
47	716Ω	3.4Ω	450Ω	51X97	A-3823	T-14886

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	OV.	OV.	OV.	OV.	7.8VDC	175V.DC	6.4VAC	225VDC
2	6J5	OV.	OV.	145VDC	175V.DC	-4.8VDC	145VDC	6.4VAC	OV.
3	6SK7	OV.	OV.	OV.	-7VDC	OV.	65VDC	6.4VAC	20.5VDC
4	6SK7	OV.	OV.	OV.	-6VDC	OV.	65VDC	6.4VAC	23.0VDC
5	6SQ7	OV.	-4VDC	OV.	-55VDC	-55VDC	77V.DC	OV.	6.4VAC
6	6V6GT	OV.	OV.	220VDC	230VDC	1.85VDC	OV.	6.4VAC	OV.
7	5Y3GT	OV.	230VDC	OV.	310VAC	OV.	310VAC	OV.	230V.DC

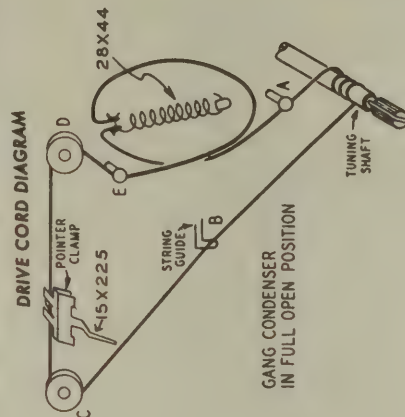
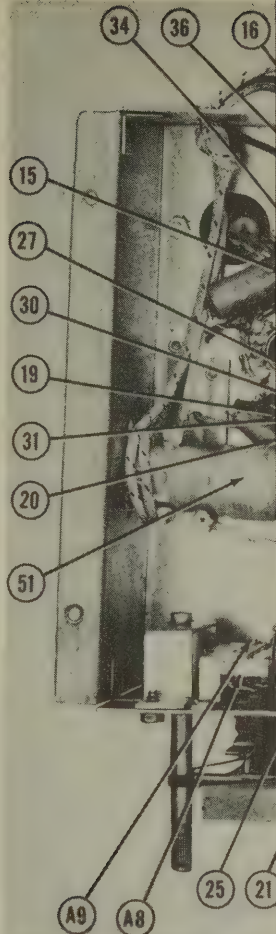
NOTE: VOLT. & RES. TAKEN IN STANDARD BROADCAST POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	0Ω	0Ω	0Ω	4.5MEG	2.2KΩ	4.78KΩ	0Ω	410KΩ
2	6J5	0Ω	0Ω	420KΩ	478KΩ	38KΩ	4.20KΩ	0Ω	.5Ω
3	6SK7	0Ω	0Ω	0Ω	28MEG	0Ω	4.49KΩ	0Ω	680KΩ
4	6SK7	0Ω	0Ω	0Ω	35MEG	0Ω	4.49KΩ	0Ω	410KΩ
5	6SQ7	0Ω	4MEG	0Ω	450KΩ	450KΩ	880KΩ	0Ω	0Ω
6	6V6GT	0Ω	0Ω	410KΩ	410KΩ	420KΩ	INF	0Ω	0Ω
7	5Y3GT	INF	410KΩ	INF	1600Ω	INF	1600Ω	INF	410KΩ

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of ±10% in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.

CHASSIS—BOTTOM VIEW



DRIVE CORD REPLACEMENT

Turn the gang condenser to the fully open position. Use a new drive cord 40" long and tie one end to the tension spring. Hook the other end of the tension spring to the tab on the drive pulley. Pass the cord through the slot in the drive pulley rim and continue one half turn counterclockwise around the drive pulley. Then pass the cord around idler stud A and wind three turns clockwise around the tuning shaft (turns must progress away from chassis). Pass cord through string guide B, over pulleys C and D and around idler stud E. Wrap 3/4 turn counterclockwise around drive pulley, stretch the tension spring and tie free end of the cord to spring. Cut off any excess string.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		PMA BASE TYPE	INSTALLATION NOTES
		AIRLINE PART No.	STANDARD REPLACEMENT		
1	1st Det.	6SJ7	6SJ7	8N	
2	Osc. IF Amp.	6X5	6X5	6Q	
3	1st IF Amp.	6SK7	6SK7	8N	
4	2nd IF Amp.	6SK7	6SK7	8N	
5	Det.-AVC-AF	6SQ7	6SQ7	8Q	
6	Power Output	6V6GT	6V6GT	7AC	
7	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		AIRLINE PART No.	MALLORY PART No.	SOLAR PART No.	AEROVOX PART No.	
8A	40 CAP. 400 VOLT	45X277	TC75	UT-30	PR8450-20	1B4045 BR2045 Filter - Red
9	.003 400	D66203	TP406	M-20-450	PR8450-20	1B4045 BR2045 Filter - White
10	.004 200	B66402	TP407	S-6-003	TC-23	DT6D3 6V6 Plate Bypass
11	.004 200	B66402	TP407	S-6-004	TC-24	DT6D3 6V6 Plate Bypass
12	.004 200	B66203	TP423	S-4-05	TC-2	DT4F25 Tone Compensation
13	.01 200	B66103	TP421	S-4-01	TC-12	DT4S2 Bias Filter
14	.04 400	D66403	TP425	S-6-04	TC-14	DT4S1 Audio Coupling
15	.04 400	D66403	TP425	S-6-04	TC-14	DT4S1 Audio Coupling
16	.02 400	D66203	TP423	S-4-02	TC-12	DT4S2 Screen Bypass
17	.02 400	B66503	TP426	S-4-05	TC-12	DT4S2 6SJ7 Screen Bypass
18	.02 200	B66203	TP423	S-4-02	TC-12	DT4S2 RF Bypass Pwr. Supp.
19	.02 200	B66203	TP423	S-4-02	TC-12	DT4S2 AVC Filter
20	.0005 500	D66501	TP403	S-6-0005	TC-35	DT4S2 Osc. Feedback
21	.00475 130	46X289	MC240	M0.5-325	1FM-325	DT6T5 RF Coupling
22	.00475 130	46X289	MC240	M0.5-325	1FM-325	DT6T5 Fixed Ladder
23A	50	47X468	MC225	M0.5-45	1FM-45	5W525 Audio Plate Bypass
24	10	47X477	MC225	M0.5-45	1FM-45	5W525 Diode Filter
25	47	47X463	MC225	M0.5-41	1FM-41	5W501 IF Coupling
26	20	47X482	MC225	M0.5-45	1FM-45	5W505 Osc. Grid Capacitor
27	4.7	47X478	MC225	M0.5-45	1FM-45	5W505 Fixed Trimmer

Use exact replacement, a .005 may be used with a loss of sensitivity and calibration on SW

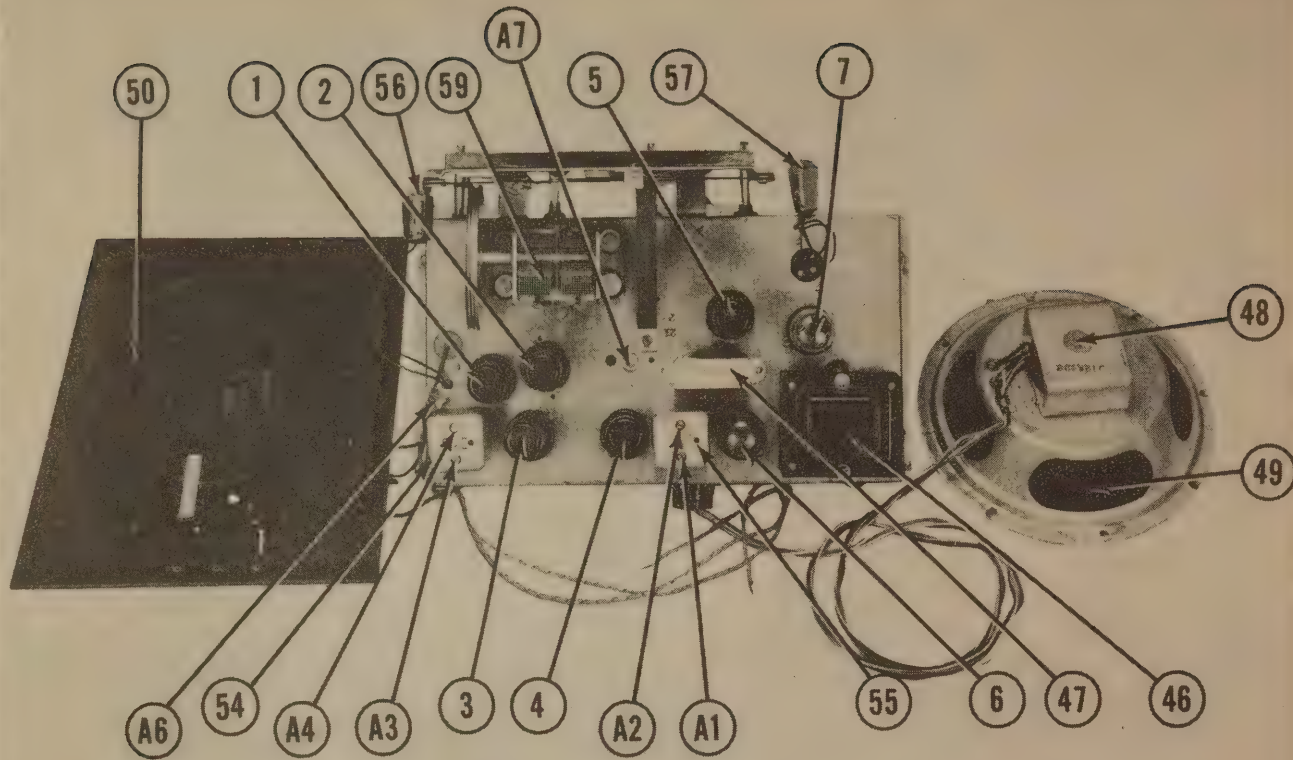
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIRLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
28A	500KΩ 1	36X311	TK401	D13-133	AM-60-Z	Volume Control
28B	Switch	Not Req.	Not Req.	E 41	RSS-3	Attach to 28A per instructions
29A	3 Meg. Switch	40X259	UT165	D13-140	AM-67-Z	Tone Control
29B	Switch	Not Req.	SS25	E	RSS-3	Attach to 29A per instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		AIRLINE PART No.	MALLORY PART No.	IRC PART No.	IRC PART No.	
30	2.2 Meg.	B85225	BTS-220	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn. 1st Detector Grid
31	220KΩ	B84222	BTA-10K	BTA-10K	BTA-10K	Red-Red-Red 1st Detector Cathode
32	10KΩ	C84103	BTS-39K	BTS-39K	BTS-39K	Br.-Blk.-Or. Osc. Plate Load
33	39KΩ	B84393	BTS-68K	BTS-68K	BTS-68K	Or.-White-Or. Osc. Grid
34	68KΩ	B84683	BTS-2.2 Meg.	BTS-2.2 Meg.	BTS-2.2 Meg.	Blue-Gray-Or. Screen Dropping
35	2.2 Meg.	B85225	BTS-2700	BTS-2700	BTS-2700	Red-Red-Grn. AVC Network
36	2700Ω	B84272	BTA-39K	BTA-39K	BTA-39K	Red-Vi.-Red 1st IF Plate Load
37	1 Meg.	B85105	BTA-39K	BTA-39K	BTA-39K	Br.-Blk.-Grn. 2nd IF Grid
38	39KΩ	B85221	BTA-39K	BTA-39K	BTA-39K	Or.-White-Or. Screen Dropping
39	220Ω	B85475	BTA-39K	BTA-39K	BTA-39K	Red-Red-Br. Filter Load
40	47KΩ	B85475	BTA-39K	BTA-39K	BTA-39K	Vi.-Vi.-Or. Diode Load
41	4.7KΩ	B85475	BTA-39K	BTA-39K	BTA-39K	Vi.-Vi.-Orn. 1st AF Grid
42	470KΩ	B85475	BTA-39K	BTA-39K	BTA-39K	Vi.-Vi.-Orn. 1st AF Plate Load
43	380KΩ	B85634	BTA-39K	BTA-39K	BTA-39K	Or.-Or.-Vi. Output Grid
44	620KΩ	B85624	BTA-39K	BTA-39K	BTA-39K	Blue-Red-Vi. Voltage Divider Bias
45	91KΩ	B83913	BTA-39K	BTA-39K	BTA-39K	White-Br.-Or. Voltage Divider Bias

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	AIRLINE PART No.	STANCOR PART No.	THORDASON PART No.	
46	117 VAC 0.51A	610VCT 0.062A	5.1VAC 0.19A	6.4VAC 0.255A	53X235	P-6011*	T-13R20*	*Use universal mounting brkts.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI.	SEC.	AIRLINE PART No.	STANCOR PART No.	THORDASON PART No.	
47	7160Ω	3.4Ω	450V	.72	51X97	A-3923	T-14885	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC IMP.	AIRLINE PART No.	JENSEN PART No.	
48	150Ω	8.4Ω	12A401*	ST-438	*Used in model 54WG-2700A
49	CONE DIA. 7-5/8"	VC DIA. 1 1/16"	NOT READILY	REPLACEABLE	USE COMPLETE SPEAKER UNIT.

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.	
50A	"F" Loop Ant.	.12	3Ω	9A1335		Model 54WG-2700A
B	"	0Ω	2.8Ω	9A1453		" 54WG-2500A
51	"D" Ant. Coil	.5Ω	0Ω	9A1451	14-1044	
52	"B" Osc.	.72	2.5Ω	9A1452		Items 52,53 wound on same form
53	"D"	.12	0Ω	9A1452		
54	Input IF	21.3Ω	21.8	9A1810	16-6658	
55	Output IF	21Ω	18Ω	9A1811	16-6660	

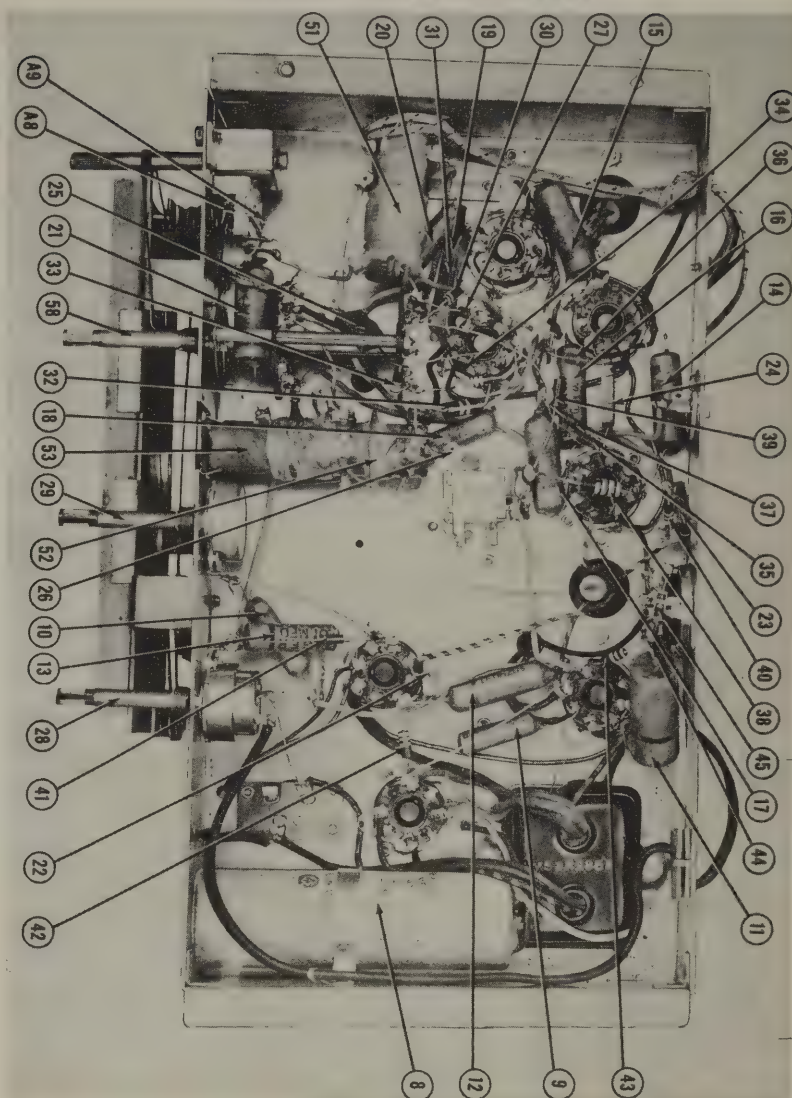
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA	INSTALLATION NOTES
					AIRLINE PART No.	
56	Bayonet	6-8	0.2	White		Type 51
57	"	6-8	0.2	White		" "

MISCELLANEOUS

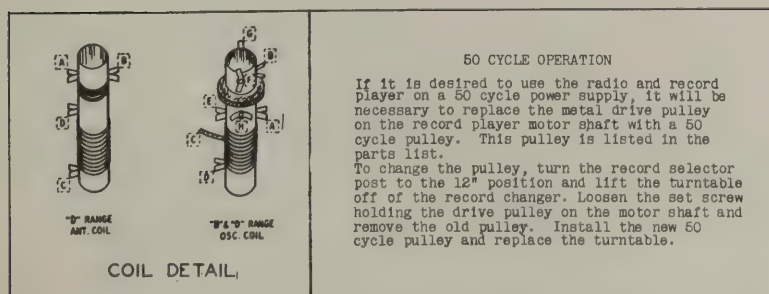
ITEM No.	PART NAME	AIRLINE PART No.	NOTES
58	Switch	2A177	Band & Phono
59	Tuning Cap.	14A135	2 Gang Variable Cap.
A6	Trimmer	17A149	Loop Aerial (1.2-12 MMF)
A7	"	17A234	600KC Padder (250-525 MMF)
A8	Trimmer	17A163	Ant. "D" (2-25MMF)
A9	"	"	Osc. "D" "
	Knob	10A530	Volume Control
	"	10A531	Tuning "
	"	10A532	Tone "
	"	10A533	Band Change Switch
	Dial Scale	56X563	Glass
	Dial Background	56X501	
	Escutcheon	4X871	Dial

CHASSIS—BOTTOM VIEW



DISASSEMBLY INSTRUCTIONS

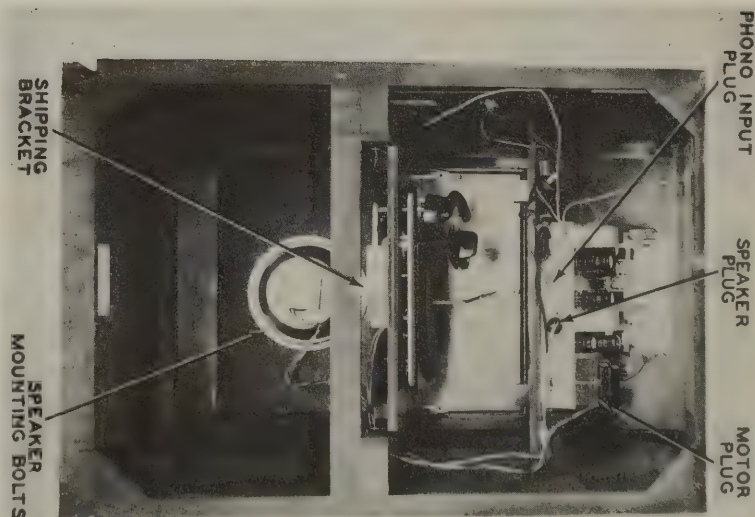
- 1 - Remove the following push-on type knobs: Volume Control, Tone Control, Phono-Broadcast Switch, and Tuning Knobs.
- 2 - Disconnect the speaker plug from the chassis.
- 3 - Disconnect the phono-pickup jack from chassis.
- 4 - Disconnect the phono-motor plug from chassis.
- 5 - Remove the ground lead lug from the hex screw on chassis.
- 6 - Disconnect lead going to cabinet antenna.
- 7 - Disconnect three leads going to the loop antenna.
- 8 - Remove dial lights from escutcheon plate.
- 9 - Remove the four hex screws and washers holding chassis to cabinet. Remove chassis.
- 10 - Remove four wood screws holding speaker. Remove speaker.
- 11 - Remove four nails holding antenna loop to cabinet. Remove antenna loop.



50 CYCLE OPERATION

If it is desired to use the radio and record player on a 50 cycle power supply, it will be necessary to replace the metal drive pulley on the record player motor shaft with a 50 cycle pulley. This pulley is listed in the parts list.

To change the pulley, turn the record selector post to the 12" position and lift the turntable off of the record changer. Loosen the set screw holding the drive pulley on the motor shaft and remove the old pulley. Install the new 50 cycle pulley and replace the turntable.



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	OV.	OV.	OV.	OV.	7.8V.DC	175V.DC	6.4V.AC	225V.DC
2	6J5	OV.	OV.	145V.DC	175V.DC	-4.8V.DC	145V.DC	6.4V.AC	OV.
3	6SK7	OV.	OV.	OV.	-7V.DC	OV.	65V.DC	6.4V.AC	205V.DC
4	6SK7	OV.	OV.	OV.	-6V.DC	OV.	65V.DC	6.4V.AC	230V.DC
5	6SQ7	OV.	-4V.DC	OV.	-55V.DC	-55V.DC	77V.DC	OV.	6.4V.AC
6	6V6GT	OV.	OV.	220V.DC	230V.DC	-185V.DC	OV.	6.4V.AC	OV.
7	5Y3GT	OV.	230V.DC	OV.	310V.AC	OV.	310V.AC	OV.	230V.DC

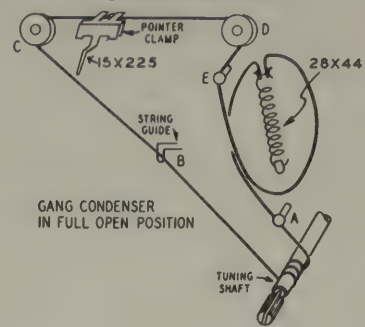
NOTE: VOLT. & RES. TAKEN IN STANDARD BROADCAST POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SJ7	0 Ω	0 Ω	0 Ω	4.5 MEG	2.2 K Ω	478 K Ω	0 Ω	410 K Ω
2	6J5	0 Ω	0 Ω	420 K Ω	478 K Ω	38 K Ω	420 K Ω	0 Ω	.5 Ω
3	6SK7	0 Ω	0 Ω	0 Ω	2.8 MEG	0 Ω	449 K Ω	0 Ω	880 K Ω
4	6SK7	0 Ω	0 Ω	0 Ω	3.5 MEG	0 Ω	449 K Ω	0 Ω	410 K Ω
5	6SQ7	0 Ω	4 MEG	0 Ω	450 K Ω	450 K Ω	880 K Ω	0 Ω	0 Ω
6	6V6GT	0 Ω	0 Ω	410 K Ω	410 K Ω	420 K Ω	INF	0 Ω	0 Ω
7	5Y3GT	INF	410 K Ω	INF	1600 Ω	INF	1600 Ω	INF	410 K Ω

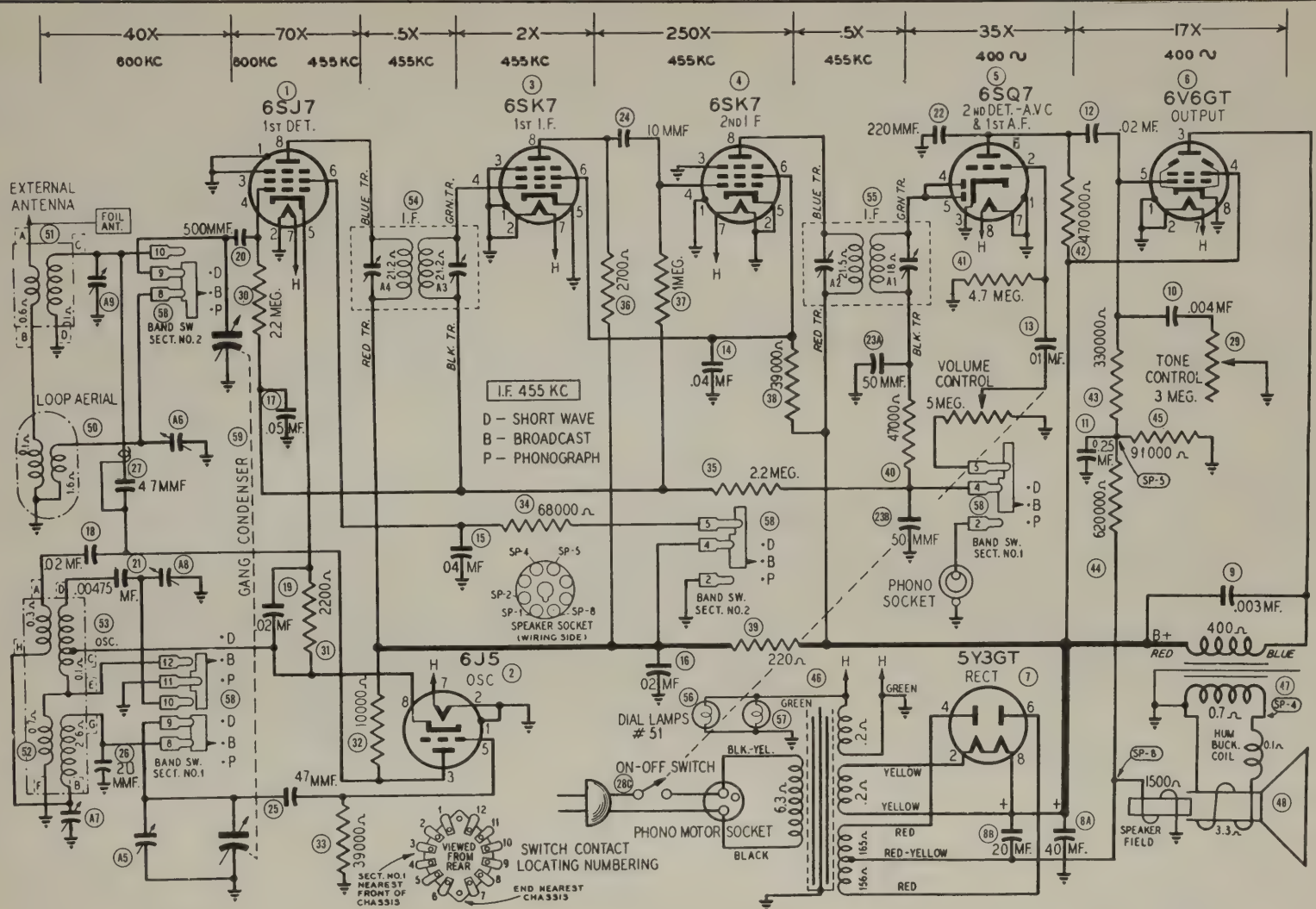
- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.

DRIVE CORD DIAGRAM



DRIVE CORD REPLACEMENT

Turn the gang condenser to the fully open position. Use a new drive cord 40" long and tie one end to the tension spring. Hook the other end of the tension spring to the tab on the drive pulley. Pass the cord through the slot in the drive pulley rim and continue one half turn counterclockwise around the drive pulley. Then pass the cord around idler stud A and wind three turns clockwise around the tuning shaft (turns must progress away from chassis). Pass cord through string guide B, over pulleys C and D and around idler stud E. Wrap 3/4 turn counterclockwise around drive pulley, stretch the tension spring and tie free end of the cord to spring. Cut off any excess string.



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

RCA VICTOR
MODELS 64F1, 64F2, 64F3



RCA VICTOR MODEL 64F3 (RC-1037A)

RCA VICTOR
MODELS 64F1, 64F2, 64F3

TRADE NAME RCA Victor Models 64F1 & 64F2 (RC-1037), 64F3 (RC-1037A)
MANUFACTURER Radio Corp. of America, RCA Victor Div., Camden, N. J.
TYPE SET Battery Operated Superheterodyne Receiver
TUBES (FOUR) Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output.

POWER SUPPLY 90 Volt "B" Battery & 1½ Volt "A" Battery - RCA VS022 or equivalent
TUNING RANGE—BROADCAST 540-1600KC

ALIGNMENT INSTRUCTIONS

Set dial pointer at left hand calibration mark with rotors in full mesh. Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to top cap. (grid) 1N5. Low side to chassis.	455KC	Quiet point at low freq. end of dial.	Across voice coil	A1,A2.	Adjust for maximum output.
"	High side to top cap. (grid) 1A7. Low side to chassis.	"	"	"	A3,A4.	" " " "
200 MMFD	High side to ant (blue) lead. Low side to chassis.	1300KC	1300KC	"	A5,A6.	" " " "
"	"	600KC	600KC	"	A7,A8.	" " " "
						Repeat adjustments A5,A6,A7, and A8 for exact alignment.

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PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		RCA PART No.	STANDARD REPLACEMENT		
1	Converter	1A7GT	1A7GT	7Z	
2	IF AMP	1N5GT	1N5GT	5Y	
3	Det.-AVC-AF	1H5GT	1H5GT	5Z	
4	Power Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		RCA PART No.	MALLORY PART No.	SOLAR PART No.	AEROVOX PART No.	
5	CAP. VOLT	36593	TC42	UT-121	PBS150-12	RF Bypass Pwr. Supp.
6	10 .005	70606	TP408	TC-25	484-005	505 Plate Bypass
7	.005	70606	TP408	TC-25	484-005	Audio Coupling
8	.002	70622	TP408	TC-22	684-002	"
9	.05	70611	TP426	TC-15	484-05	1A7 Screen Bypass
10	1 .200	70617	TP426	TC-1	484-1	AVC Filter
11	350	38640	MC241	IFM-33	1468-0003	Audio Plate Bypass
12	120	38630	MC235	IFM-31	1468-0001	Tone Compensation
13	120	38630	MC235	IFM-31	1468-0001	RF Bypass Diode
14	56	71927				Fixed Tuning Ant. Coil

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		RCA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
15A	1 Meg. Sharif.	71166	MR53	D13-137	M-65-Z	Volume Control - See Note 1
B	Not Req.	Not Req.	Not Req.	A	Not Req.	Attach to 15A per instructions
C	Switch	Not Req.	M27	42	SW-42	"

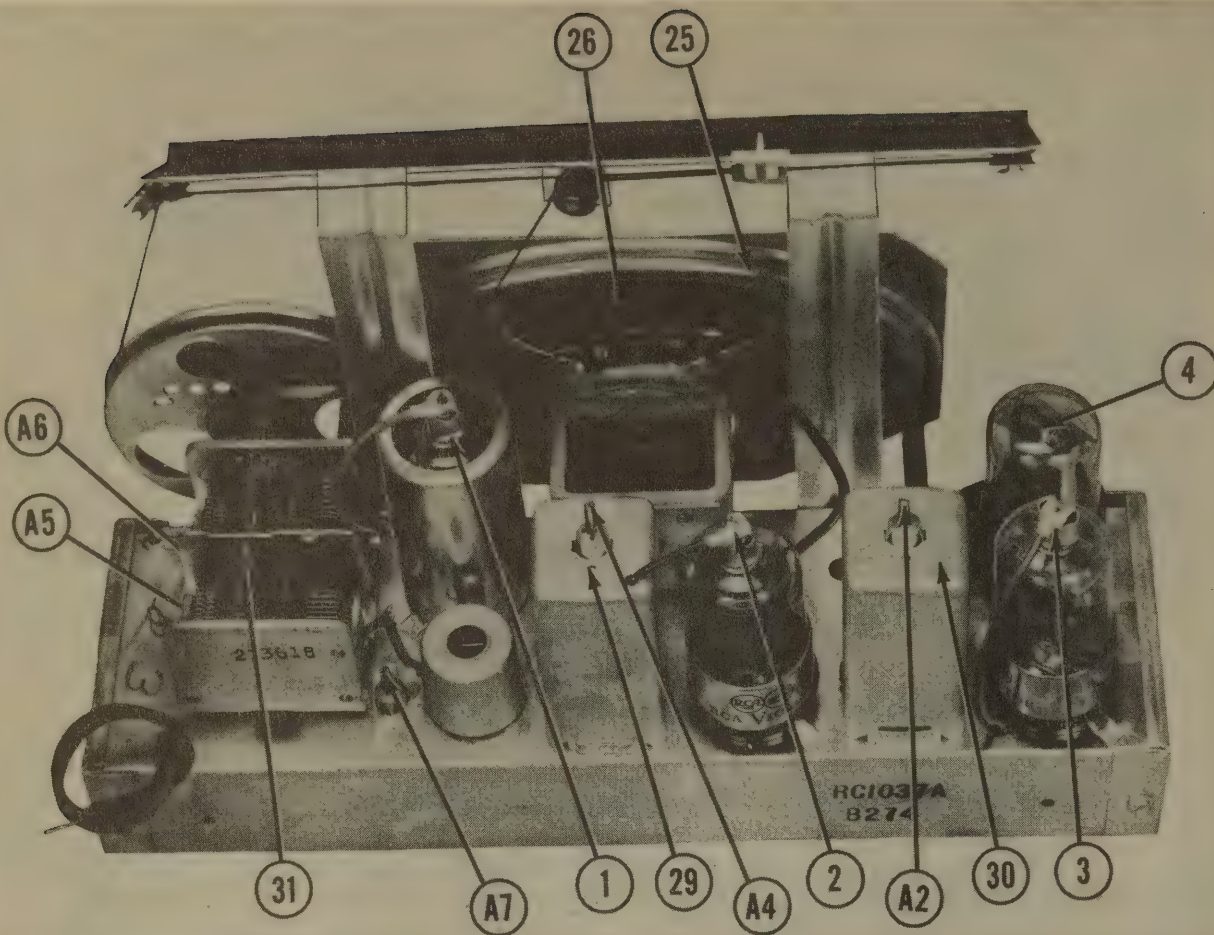
Note 1 - Install a 50K Ω resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft side, terminals down.)

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		RCA PART No.	MALLORY PART No.	IRC PART No.	IRC PART No.	
16	3-3 Meg.	31417	BFS-3.3 Meg.			Or.-Red.-Yl. Mixer Grid
17	220K Ω	14583	BFS-220K			Red-Red-Yl. Osc. Grid
18	68K Ω	14138	BFS-68K			Blue-Gray-Or. Mixer Screen Dropping
19	10 Meg.	30992	BFS-10 Meg.			Br.-Blk.-Blue AVC Network
20	10 Meg.	30992	BFS-10 Meg.			Br.-Blk.-Blue 1st AF Grid
21	1 Meg.	30682	BFS-1 Meg.			Br.-Blk.-Grn. 1st AF Plate Load
22	2.2 Meg.	30649	BFS-2.2 Meg.			Red-Red-Grn. Output Grid
23	470 Ω	30499	BFS-470			Yl.-Yl.-Br. Fixed Bias

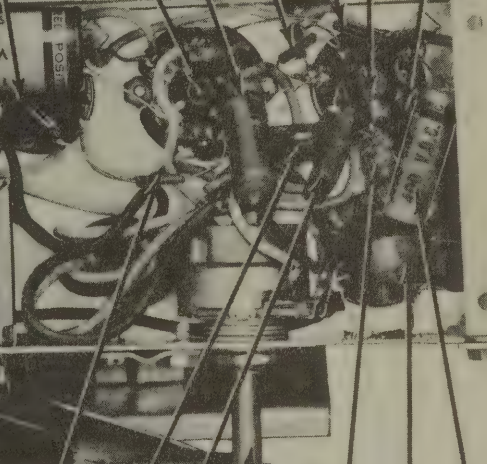
TRANSFORMER (OUTPUT)

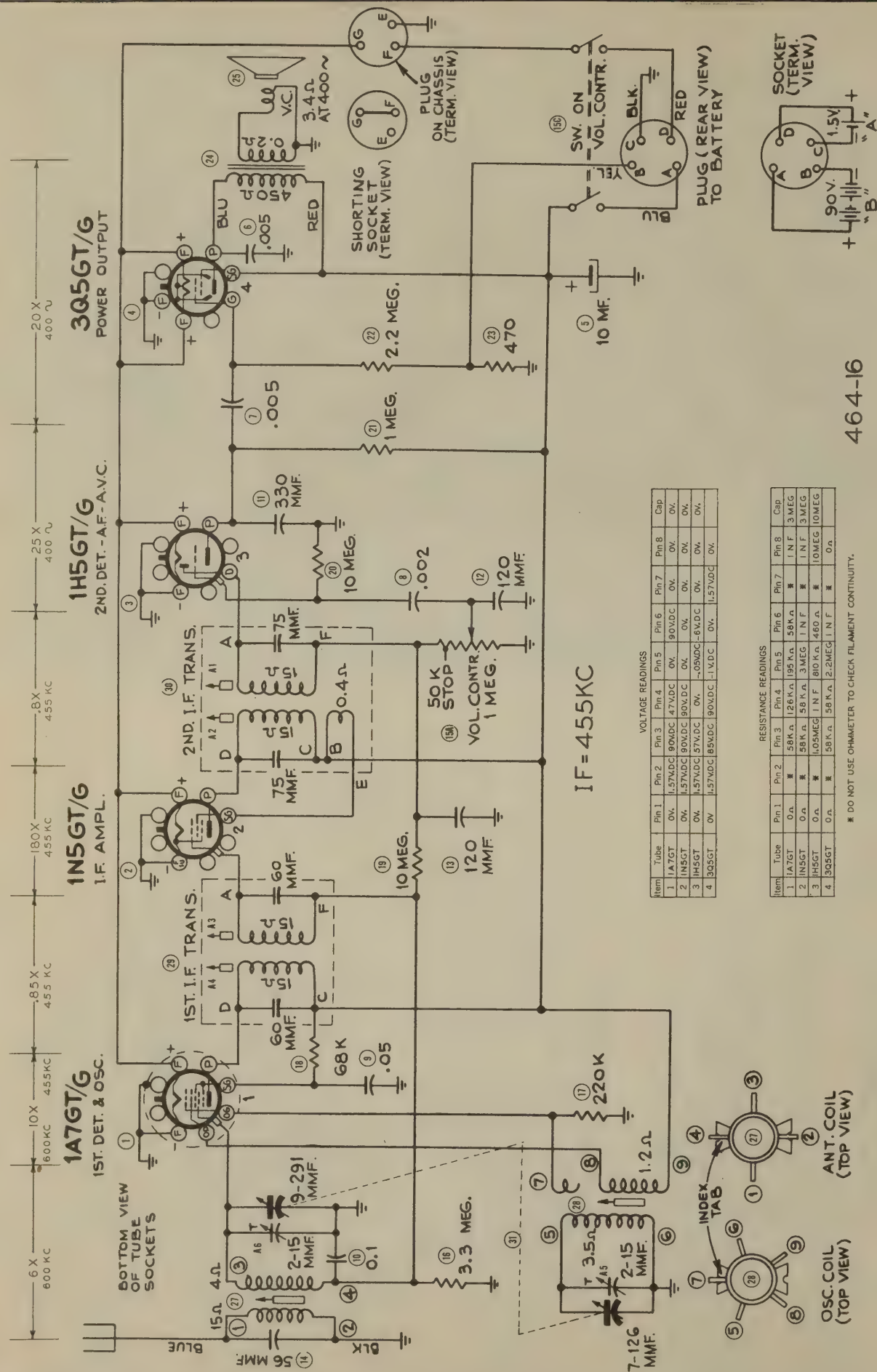
ITEM No.	IMPEDANCE	BATING	REPLACEMENT DATA				INSTALLATION NOTES
			DC RES.	RCA PART No.	STANCOR PART No.	THORDAR'N PART No.	
24	10,000 Ω	3-8 Ω	350 Ω	922225-3	A-38751	T-145841	1Dr-111 new mounting holes.



CHASSIS—BOTTOM VIEW

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VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	OV.	1.57VDC	90VDC	47VDC	OV.	90VDC	OV.	OV.	OV.
2	1N5GT	OV.	1.57VDC	90VDC	90VDC	OV.	OV.	OV.	OV.	OV.
3	1N5GT	OV.	1.57VDC	90VDC	90VDC	OV.	OV.	OV.	OV.	OV.
4	3Q5GT	OV.	1.57VDC	90VDC	90VDC	OV.	OV.	OV.	OV.	OV.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0Ω	58KΩ	126KΩ	195KΩ	58KΩ	1N F	3 MEG	1N F	3 MEG
2	1N5GT	0Ω	58KΩ	58KΩ	3 MEG	1N F	10 MEG	10 MEG	10 MEG	10 MEG
3	1N5GT	0Ω	58KΩ	58KΩ	3 MEG	1N F	10 MEG	10 MEG	10 MEG	10 MEG
4	3Q5GT	0Ω	58KΩ	58KΩ	3 MEG	1N F	10 MEG	10 MEG	10 MEG	10 MEG

* DO NOT USE OHMMETER TO CHECK FILAMENT CONTINUITY.

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for volume measurements.



SPARTON MODEL 5AW06

TRADE NAME Sparton Model 5AW06 (Ch. 5-06)
MANUFACTURER Sparks-Withington Co., Jackson, Michigan
TYPE SET AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE) Types, 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 50L6GT Power Output, 35Y4 Rectifier.

POWER SUPPLY 117 Volts AC-DC **RATING** - .255 Amps. @ 117V AC
TUNING RANGE-BROADCAST 540-1620KC

ALIGNMENT INSTRUCTIONS

Set pointer at left hand stop line with gang in fully closed position. Place loop in same relative position to chassis as it will be with set in cabinet. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to pin #6 (grid) 14Q7. Low side to B-.	455KC	High freq. end of dial.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to B- and decrease dummy ant. to prevent excessive hum modulation.
	Loop	1600KC	1600KC	"	A5	Adjust for maximum output. Connect output of signal generator to loop of two turns of wire and radiate signal into receiver loop.
	"	1400KC	Tune in 1400 KC signal.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SPARTON PART No.	REPLACEMENT PART No.		
1	Converter	14Q7	14Q7	6AL	
2	IF Amp.	14A7	14A7	8V	
3	Det.-AVC-AF	14B6	14B6	8H	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		SPARTON PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	CAP. 30	PA4301	ZN511	M-40*30-150	TA-430	Filter - Red
B	40					" - Yellow
7	150					Line Filter
8	.05	PC40GL-503	TP426	S-4-05	TC-15	50L6 Plate Bypass
9	.01	PC40GL-103	TP421	S-4-01	TC-11	Audio Coupling
10	.002	PC40GL-202	TP421	S-6-002	TC-22	"
11	.01	PC40GL-103	TP421	S-4-01	TC-11	Screen Bypass
12	.05	PC40GL-503	TP426	S-4-05	TC-15	Line Isolating
13	.15	PC40GL-154	TP417	S-4-2	TC-1	AVC Filter
14	.05	PC40GL-503	TP426	S-4-05	TC-15	Audio Plate Bypass
15	500	MC600-511	MC225	M0-5-45	LM-45	RF Bypass Diode
16	27	MC600-271	MC220	M0-5-425	MS-425	Osc. Tuned Circuit
35	.05	PC40PK-503	TP426	S-4-05	TC-15	Fixed Trimmer
37	15	PA4328-1				Ant. Coupling
38	.001	PC40GL-102	TP404	S-6-001	TC-21	"

*Used in earlier productions

CONTROLS

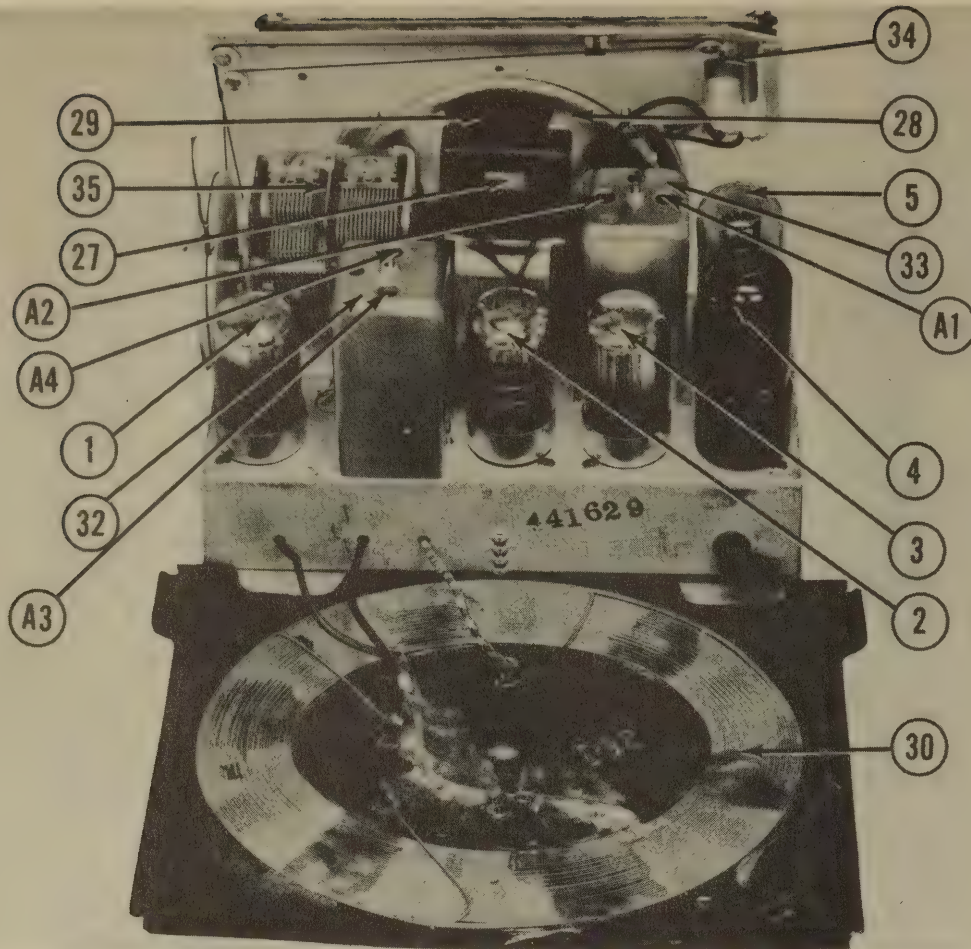
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		SPARTON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	RESIST. 500K \pm	PA4400-2	MK401	D13-133	AM-60-7	Volume Control
B	Shunt	Not Req.	Not Req.	E	KSS-5	Attach to 16A per instructions
C	Switch		M28	41	SW-4	"

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		SPARTON PART No.	MALLORY PART No.	IRC PART No.	SPARTON PART No.	
17	15 Meg.	BR12S-186		ETS-15		Br.-Grn.-Blue AVC Network
18	22K \pm	BR12S-223		ETS-2.2 Meg.		Red-Red-Or. Osc. Grid
19	2.2 Meg.	BR12N-154		ETS-2.2 Meg.		Red-Red-Grn. AVC Network
20	150K \pm	BR12S-154		ETS-150K		Br.-Grn.-Yl. Line Isolating
21	5.6 Meg.	BR12S-565		ETS-5.6 Meg.		Grn.-Blue-Grn. 1st Af Grid
22	220K \pm	BR12N-224		ETS-220K		Red-Red-Yl. 1st Af Plate Load
23	470K \pm	BR12N-474		ETS-470K		Yl.-Vi.-Yl. Output Grid
24	150K	BR12S-151		EW-2-150		Br.-Grn.-Br. Output Cathode
25	1200 \pm	CR12S-122		ETA-1200		Br.-Red-Red Filter
26	82 \pm	BR12S-820		EW-2-52		Gray-Red-Blk. Pilot Light Shunt

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	SPARTON PART No.	STANCOR PART No.	
27	2300 \pm	3.4 \pm	Part of 63000-3C	A-3876T	Thend mounting tabs down, file out slots and mount on original bracket.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		SPARTON PART No.	JENSEN PART No.	
28	FIELD PM	VC IMP. 3.4Ω	63000-3C	
29	CONEDIA. VC DIA.	1/2"	ST-107	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT

R F COILS

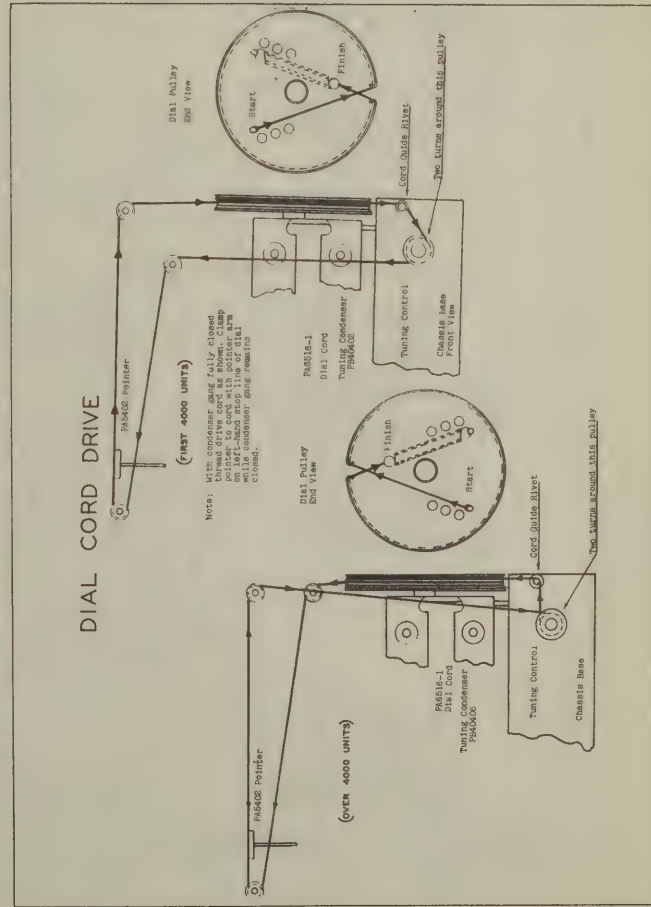
ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		SPARTON PART No.	MEISSNER PART No.	
30A	Loop Ant.	0Ω	AB3105-1	Used in 1st production
30B	Loop Ant.	.7Ω	AB43024-1	" " later
31A	Osc. Coil	.5Ω	AB42200-1	" " 1st
31B	"	6Ω	AA6752-3	
32	Input IF	9.5Ω	AA6800-1	
33	Output IF	40Ω	AA6800-2	

DIAL LIGHT

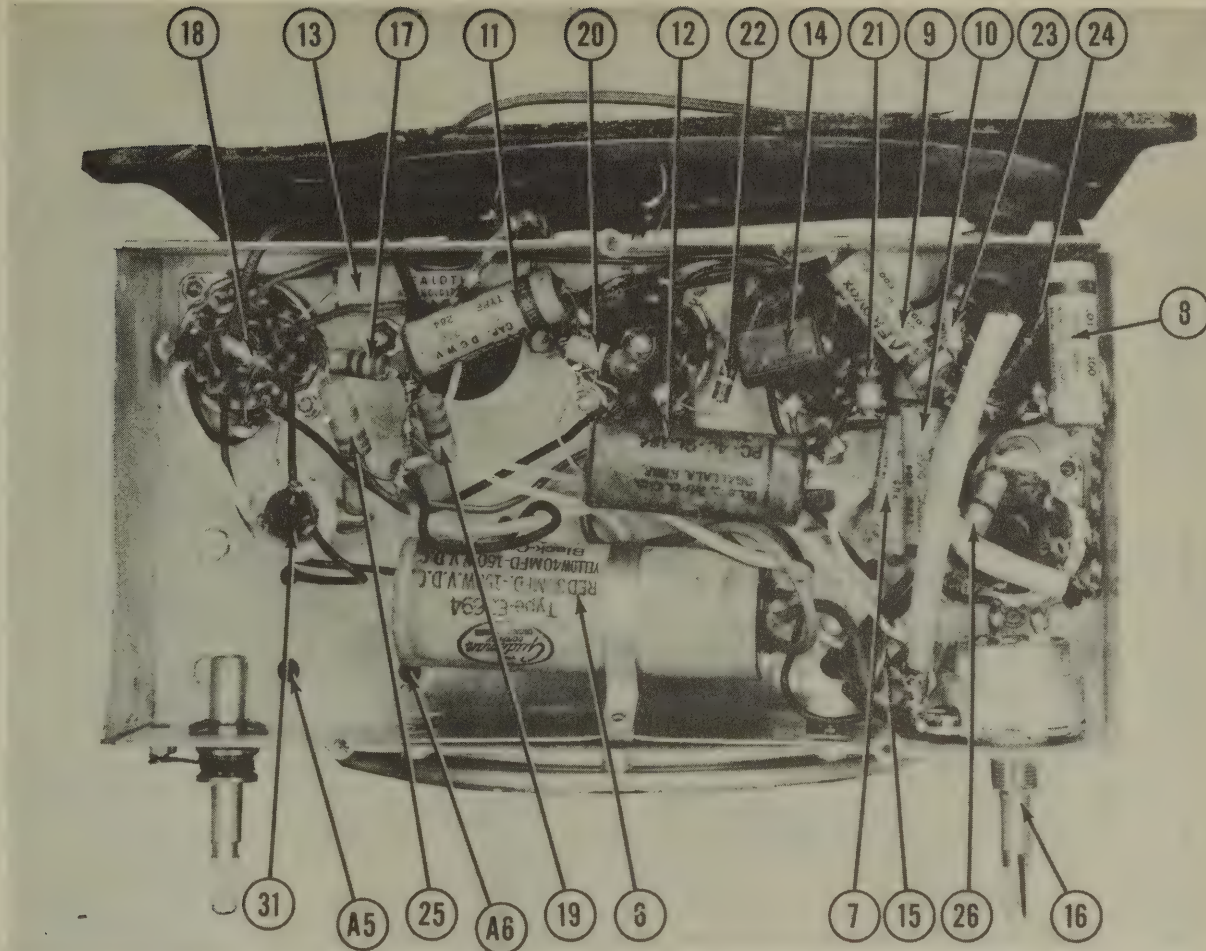
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				SPARTON PART No.	BEAD COLOR	
34	Bayonet	6-8	0.15	PA4100-2	Brown	Type 47

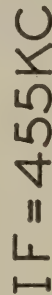
MISCELLANEOUS

ITEM No.	PART NAME	SPARTON PART No.	NOTES
35A	Tuning Cap.	PB40402	2 Gang Var. Cap.-Early Production
35B	"	PB40406	" " -Later



CHASSIS—BOTTOM VIEW

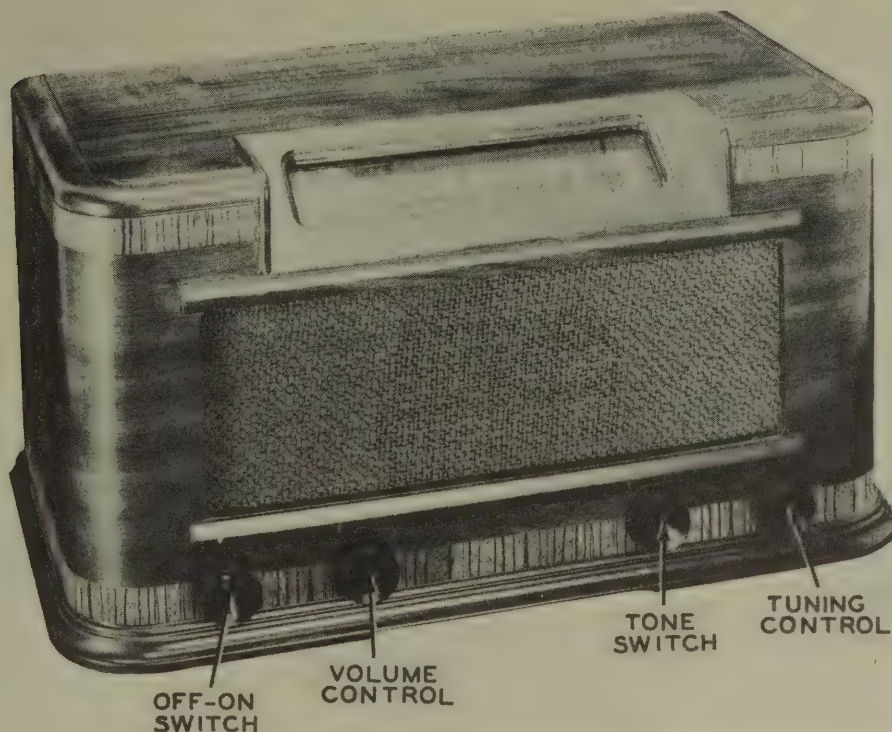




Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	12V.A.C	90V.DC	90V.DC	~25V.DC	0V.	~17V.DC	0V.	0V.
2	14A7	25V.A.C	90V.DC	90V.DC	0V.	0V.	~17V.DC	0V.	37V.A.C
3	14B6	25V.A.C	62V.DC	~5V.DC	0V.	0V.	~4V.DC	0V.	12V.A.C
4	50L6GT	0V.	88V.A.C	112V.DC	90V.DC	0V.	0V.	37V.A.C	6.2V.DC
5	35Z5GT	0V.	117V.A.C	113V.A.C	0V.	113V.A.C	0V.	88V.A.C	118V.DC

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	12 Ω	21K Ω	21K Ω	20K Ω	0 Ω	2.2MEG	.5 Ω	0 Ω
2	14A7	24 Ω	21K Ω	21K Ω	0 Ω	0 Ω	2.2MEG	0 Ω	36 Ω
3	14B6	24 Ω	241 K Ω	6MEG	0 Ω	0 Ω	520K Ω	0 Ω	12 Ω
4	50L6CT	INF	82 Ω	20K Ω	21 K Ω	440K Ω	0 Ω	36 Ω	150 Ω
5	35Z5GT	INF	111 Ω	108 Ω	INF	108 Ω	INF	8 Ω	20 K Ω

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



ECHOPHONE MODEL EC-600

TRADE NAME Echophone Model EC-600
 MANUFACTURER The Hallicrafters Co., 2611 S. Indiana Ave., Chicago, Ill.
 TYPE SET Battery Operated Superheterodyne Receiver
 TUBES (FOUR) Types, 1R5 Converter, 1T4 IF Amp., 1B5 Det.-AVC-AF, 3Q4 Power Output.
 POWER SUPPLY 90 Volt "B" Supply & 1.5 Volt "A" Supply in Pack Form
 RATING 14.5 MA @ 90 Volts DC plus .275 Amps. @ 1.5 Volts DC
 TUNING RANGE-BROADCAST 540-1680KC SHORT WAVE

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to lug on A5. Low side to chassis.	455KC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMFD	High side to ant (blue) lead. Low side to chassis.	1600KC	1600KC	"	A5	" " " "
"	"	1400KC	Tune in 1400 KC signal.	"	A6	" " " "
"	"	600KC	Tune in 600KC signal.	"	A7	Rock dial on generator and adjust for maximum output.
						Repeat adjustments A5, A6 and A7.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		ECHOPHONE PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AT	
2	If Amp.	1T4	1T4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3Q4	3Q4	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		ECHOPHONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
5	10 CAP. VOLT		TC42	M-10-150	UT121	
6	.01		TP421	S-4-01	TC-11	
7	.005		TP408	S-6-005	TC-25	
8	.02		TP423	S-4-02	TC-12	
9	.005		TP408	S-6-005	TC-25	
10	.01		TP421	S-4-01	TC-11	
11	.02		TP423	S-4-02	TC-12	
12	100		MC235	M0.5-31	1FM-31	
13	100		MC235	M0.5-31	1FM-31	
14	680		MC235	M0.3-37	1FM-37	
15	100		MC235	M0.5-31	1FM-31	
16	680		MC241	M0.3-37	1FM-37	
17	330		MC241	M0.5-33	MS-33	

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		ECHOPHONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
18A	500KΩ	25-A567	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft	Not Req.	Not req.	E	KSS-3	Attach to 18A per instructions

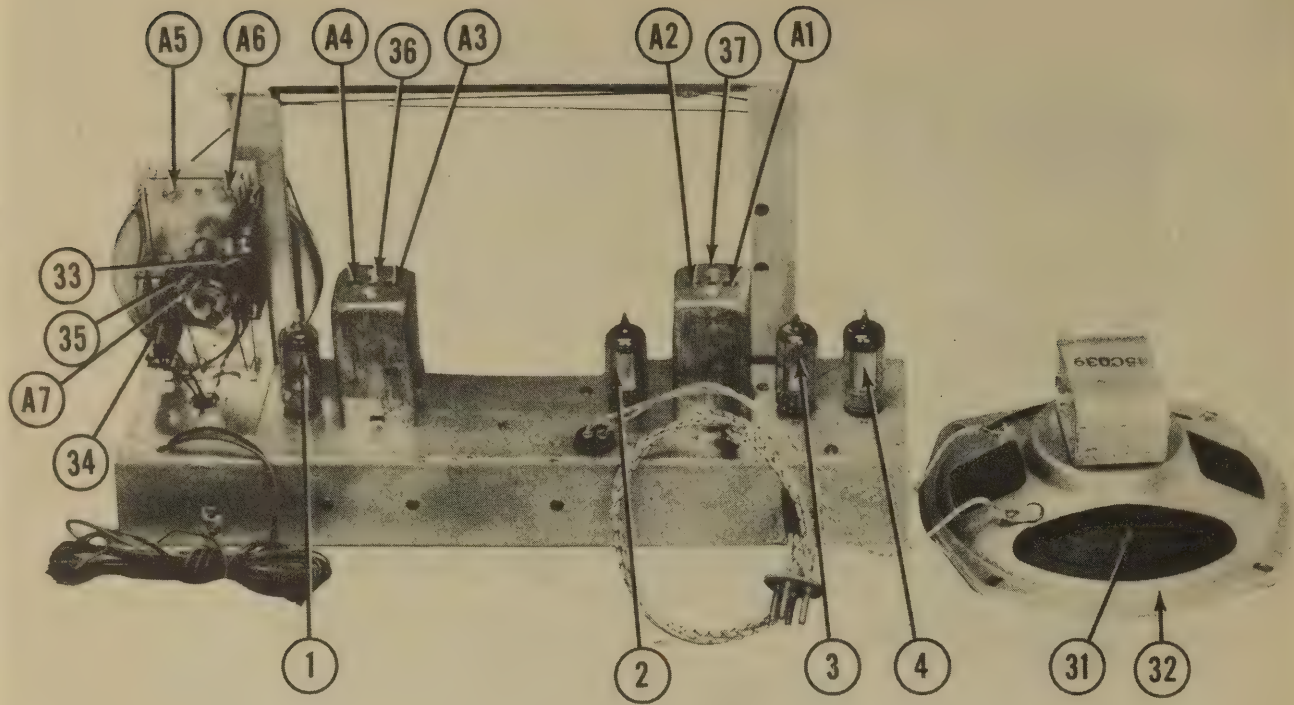
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		ECHOPHONE PART No.	IRC PART No.	IRC PART No.	
19	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
20	100KΩ			BTS-100K	Br.-Blk.-Yl. Osc. Grid
21	18KΩ			BTS-18K	Br.-Gray-Or. Screen Dropping
22	2.2 Meg.			BTS-2.2 Meg	Red-Red-Grn. AVC Network
23	68KΩ			BTS-68K	Blue-Gray-Or. If Screen Dropping
24	47KΩ			BTS-47K	Yl.-Vi.-Or. Diode Load
25	10 Meg.			BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
26	4 Meg.			BTS-4 Meg.	Yl.-Vlk.-Grn. 1st AF Screen Dropping
27	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
28	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
29	330Ω			BW-2-330	Or.-Or.-Br. Fixed Bias

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		IMPEDANCE PRI.	DC RES. SEC.	ECHOPHONE PART No.	
30	11000Ω 3.1Ω 350Ω			55B085	
				A-3831	
				T-81501	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

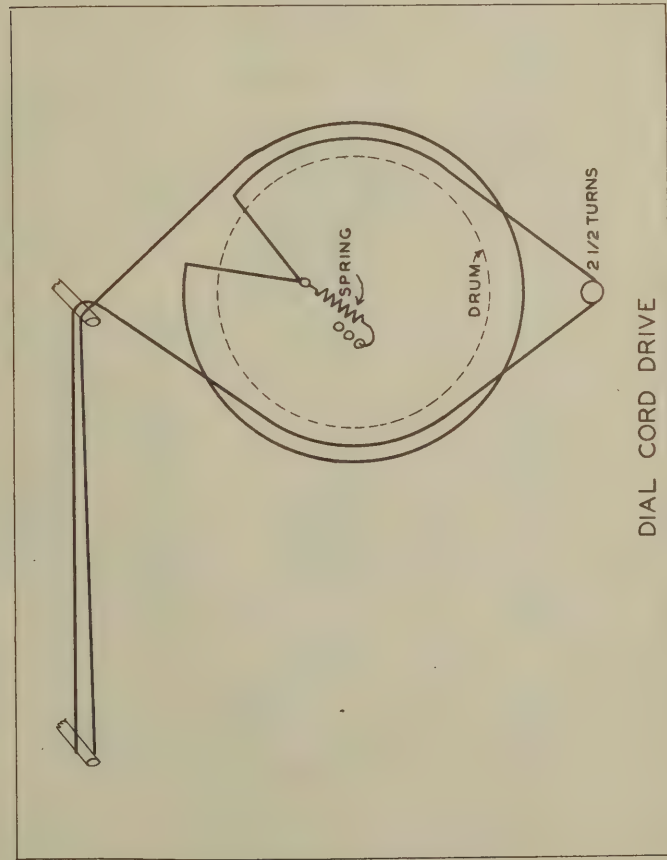
ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		ECHOPHONE PART No.	JENSEN PART No.	
31	FIELD PM 3.1Ω VC DIA. 6"	85C039	ST-108	
32		NOT READILY REPLACABLE—USE COMPLETE SPEAKER UNIT.		

R F COILS

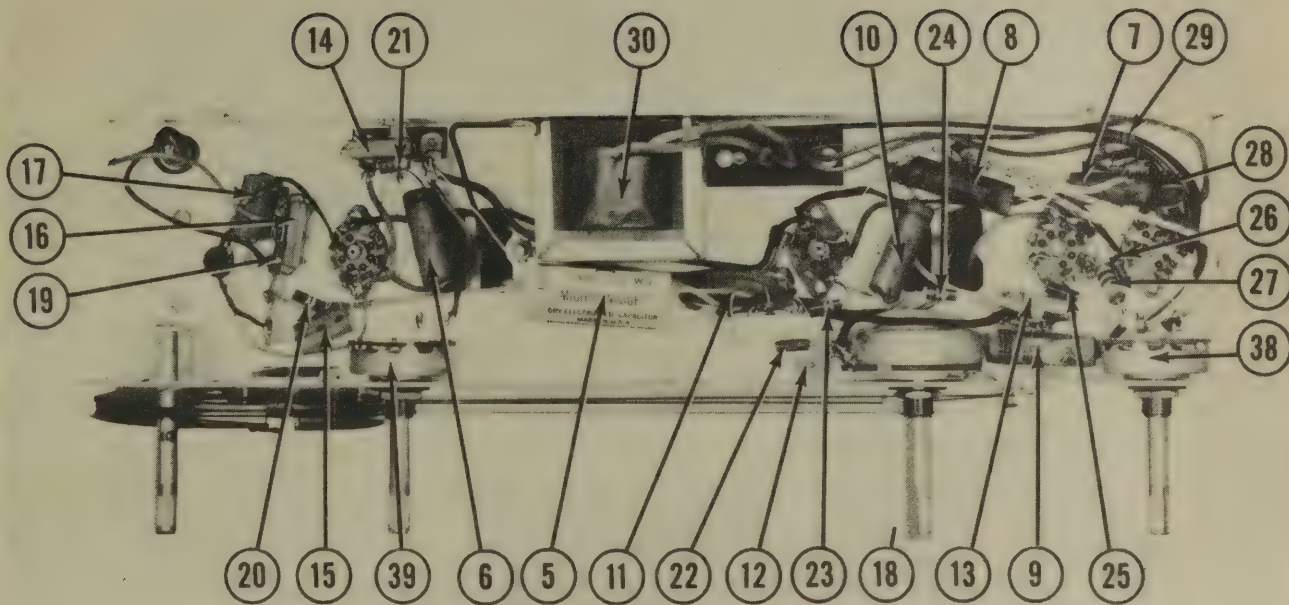
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	ECHOPHONE PART No.	MEISSNER PART No.	
33	Art. Coil	11.1Ω				
34	Osc. Pad	7.4Ω				
35	Osc. Pad	7.5Ω				
36	Input IF	22Ω	21Ω		13-6658	
37	Output "	21.7Ω	21.6Ω		16-3660	

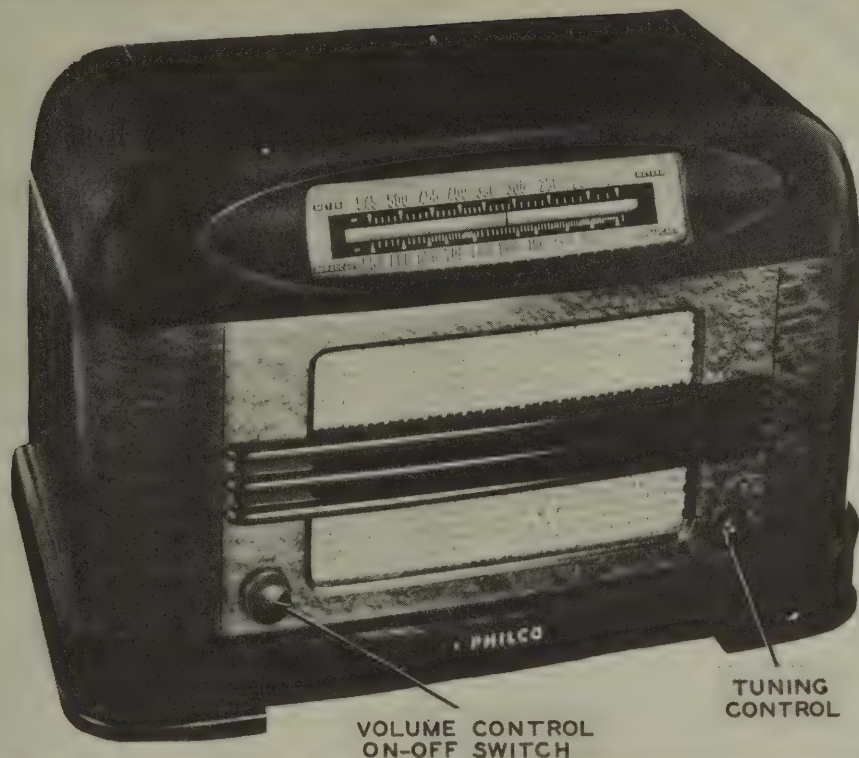
MISCELLANEOUS

ITEM No.	PART NAME	ECHOPHONE PART No.	NOTES
38	Power Switch		DEST
39	Tone Switch		SPST



CHASSIS—BOTTOM VIEW





PHILCO MODEL 46-132

TRADE NAME Philco Model 46-132
MANUFACTURER Philco Radio & Television Corp., Tioga & C Sts., Philadelphia, Pa.
TYPE SET Battery Operated Superheterodyne
TUBES (FIVE) Types, 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 2- 1A5GT Power Output
POWER SUPPLY 90Volts "B" Battery - 1.5 Volts "A" Battery in Pack Form
RATING 10.7 MA @ 90 Volts DC plus .270 Amps. @ 1.5 Volts DC
TUNING RANGE—BROADCAST 540-1720KC
SHORT WAVE

ALIGNMENT INSTRUCTIONS

Check dial pointer position with gang fully closed. Should be over small hole 3-3/4" from left end of scale plate. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
100 MMFD	High side to ant. stator section of tuning gang. Low side to chassis.	455KC	540KC (small hole 3-3/4" from left end of scale plate)	Across voice coil	A1,A2, A3.	Adjust for maximum output.
"	High side to ant. (blue) lead. Low side to chassis.	1700KC	1700KC (small hole 4-1/8" from right end of scale plate)	"	A4	" " " "
"	"	1500KC	Tune in 1500 KC signal.	"	A5	" " " "

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PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
1	Converter	1LA6	1LA6	7AK	
2	IF Amp.	1LN5	1LN5	7AO	
3	Det.-AVC-AF	1LH4	1LH4	5AG	
4	Power Output	1A5GT	1A5GT	6X	
5	Power Output	1A5GT	1A5GT	6X	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PHILCO PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6	10 150	30-2540	TC42	M-10-150	UT121	
7	.001	30-4620	TP404	S-6-.001	TC-21	
8	.001	30-4620	TP404	S-6-.001	TC-21	
9	.001	30-4620	TP404	S-6-.001	TC-21	
10	.05	30-4518	TP428	S-4-.05	TC-15	
11	.05	30-4518	TP428	S-4-.05	TC-15	
12	730	6010755301	XC251	M0.3-37	1FM-37	
13	100	6010105407	XC235	M0.5-31	1FM-31	
14	50	6000513507	XC235	M0.5-45	1FM-45	
15	100	6010105407	XC235	M0.5-31	1FM-31	
16	5	6090505007	XC5205	M0S.5-55	MS-55	

CONTROLS

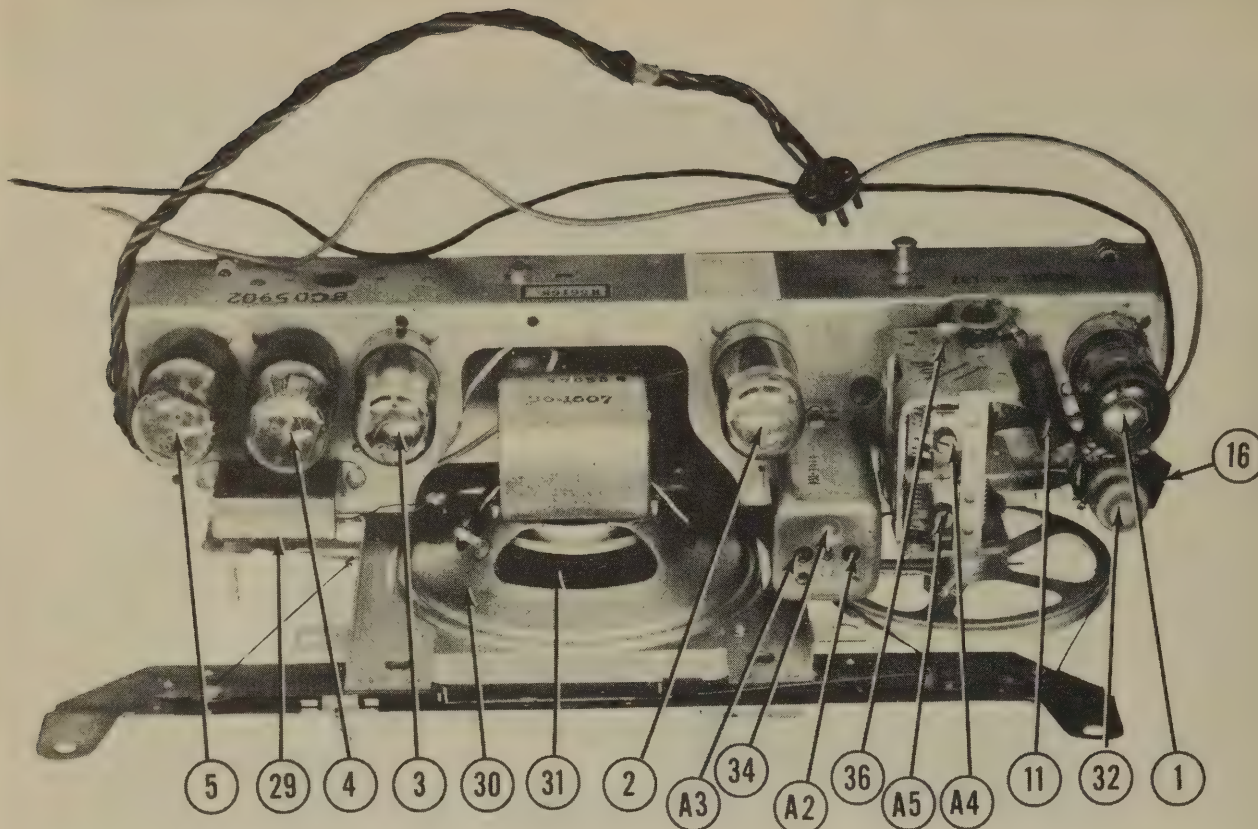
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	1 Meg.	33-5493	4R53	D13-137	M-63-Z	
B	Shaft	Not Req.	Not Req.	A2	Not Req.	
C	Switch	Not Req.	Not Req.	42	SW-A2	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		PHILCO PART No.	MALLORY PART No.	IRC PART No.	SPRAGUE PART No.	
18	4.7 Meg.	66-5473340	BTS-4.7	BTS-4.7	YL-V1.	
19	220K	66-4223340	BTS-220K	BTS-220K	YL-V1.	
20	68K	66-3683340	BTS-68K	BTS-68K	YL-V1.	
21	10 Meg.	66-8103340	BTS-10	BTS-10	YL-V1.	
22	100K	63-4103340	BTS-100K	BTS-100K	YL-V1.	
23	4.7 Meg.	66-5473340	BTS-4.7	BTS-4.7	YL-V1.	
24	1 Meg.	66-5103340	BTS-1	BTS-1	YL-V1.	
25	2.2 Meg.	66-5223340	BTS-2.2	BTS-2.2	YL-V1.	
26	2.2 Meg.	66-5223340	BTS-2.2	BTS-2.2	YL-V1.	
27	4700	66-2473340	BTS-4700	BTS-4700	YL-V1.	
28	560	66-1564350	BTA-560	BTA-560	YL-V1.	

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PHILCO PART No.	MALLORY PART No.	STANCOR PART No.	THORDARN PART No.	
29	3.3	32-8152	32-8152	A-3657	T-14583	



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		PHILCO PART No.	JENSEN PART No.	
30	FIELD VO IMP. 3.3Ω	36-1507		
31	CONE DIA. VO DIA. 5"	SPEAKER HAS SPECIAL ADJUSTMENT FEATURE—ORDER FROM MANUFACTURER		

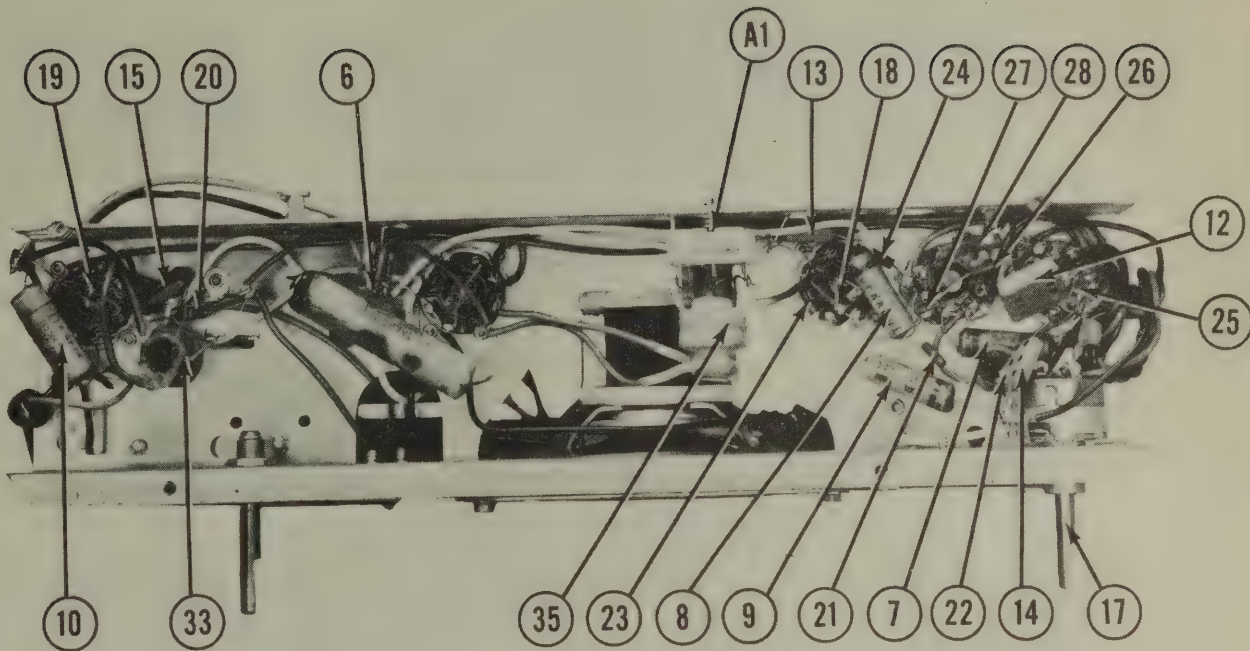
R F COILS

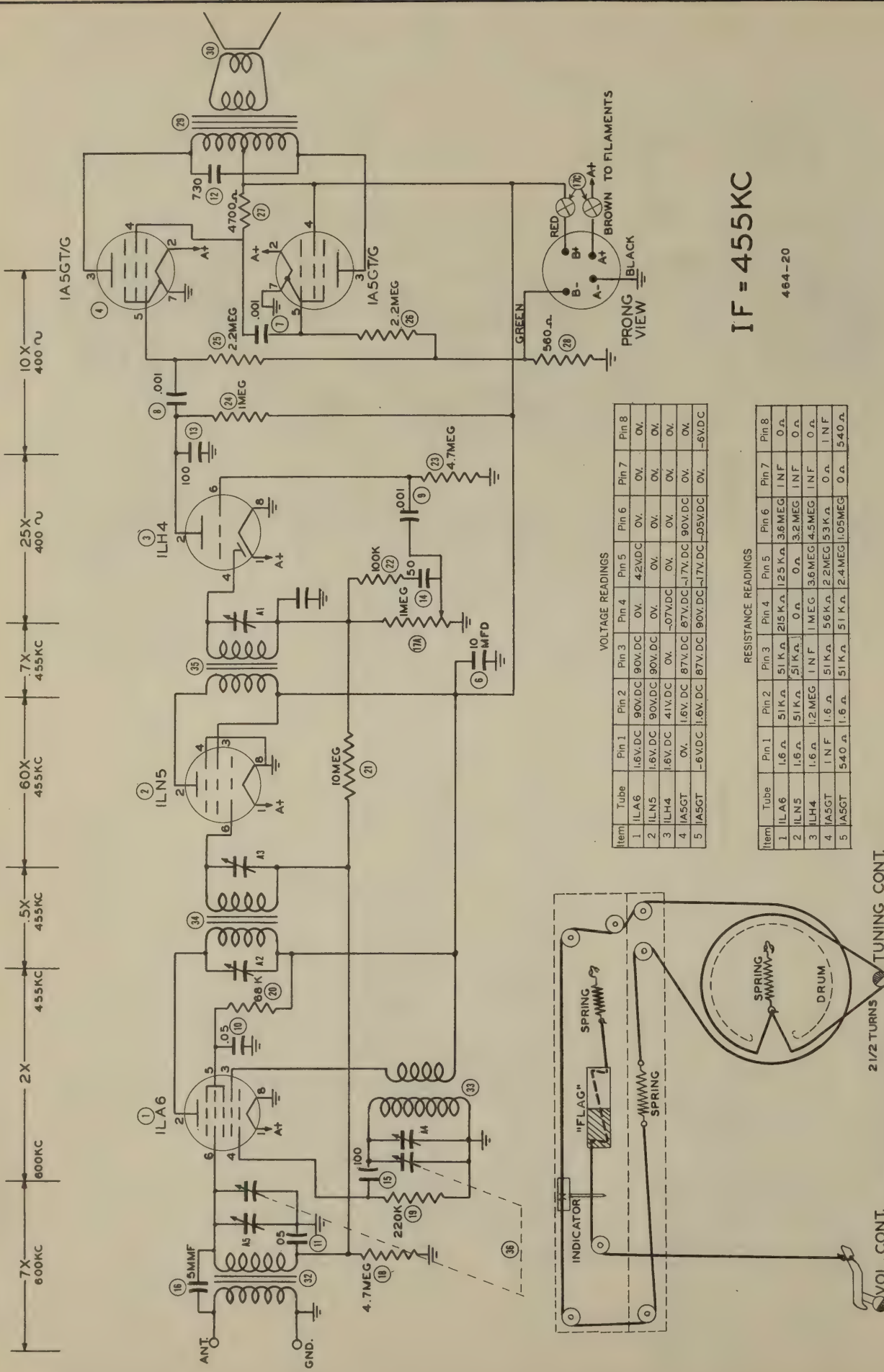
ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		PHILCO PART No.	MEISSNER PART No.	
32	Ant. Coil	15Ω		
33	Osc. Coil	2.2Ω	32-3920	
34	Input IF	1.5Ω	32-3184	14-1040
35	Output IF	19Ω	32-3949	16-6658
		32.3Ω	32-3963	

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
36	Tuning Cap. Battery Cable Assy. Plug Shaft Arm Assy. Flag Pointer Knob Assy. Cabinet Drive Cord Dial Scale Spring "	31-2708 41-8022 41-3669 36-3339 31-2554 76-1672 58-2180FCP 53-2159FCP 54-4101 10627 45-1420 45-1459 27-5875 24-3953 28-8913A3 58-2179	2 gang Variable Cap. Type P-60-D-11L Battery " Cable Tuning Assy. Flag Operative Wood (scale & bezel included) Tuning Cap. Flag & Pointer Pointer Dial Drive Tuning Capacitor Flag

CHASSIS—BOTTOM VIEW





IF = 455KC

464-20

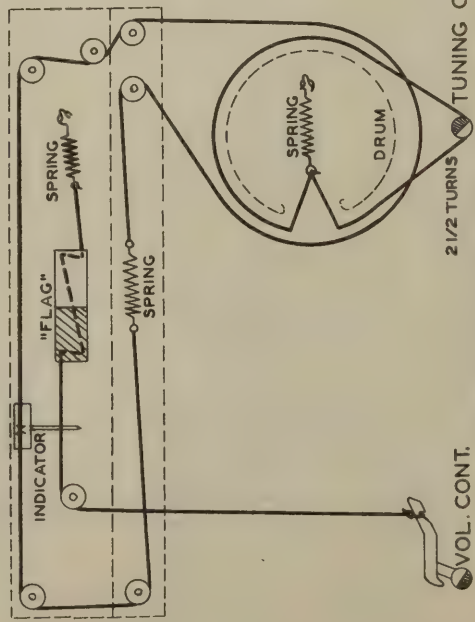
VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	1.6V DC	90V DC	90V DC	OV.	4.2V DC	OV.	OV.	OV.
2	1LN5	1.6V DC	90V DC	90V DC	OV.	OV.	OV.	OV.	OV.
3	1LH4	1.6V DC	41V DC	OV.	-0.7V DC	OV.	OV.	OV.	OV.
4	1A5GT	OV.	1.6V DC	87V DC	87V DC	-17V DC	90V DC	OV.	OV.
5	1A5GT	-6V DC	1.6V DC	87V DC	90V DC	-17V DC	-0.5V DC	OV.	-6V DC

RESISTANCE READINGS

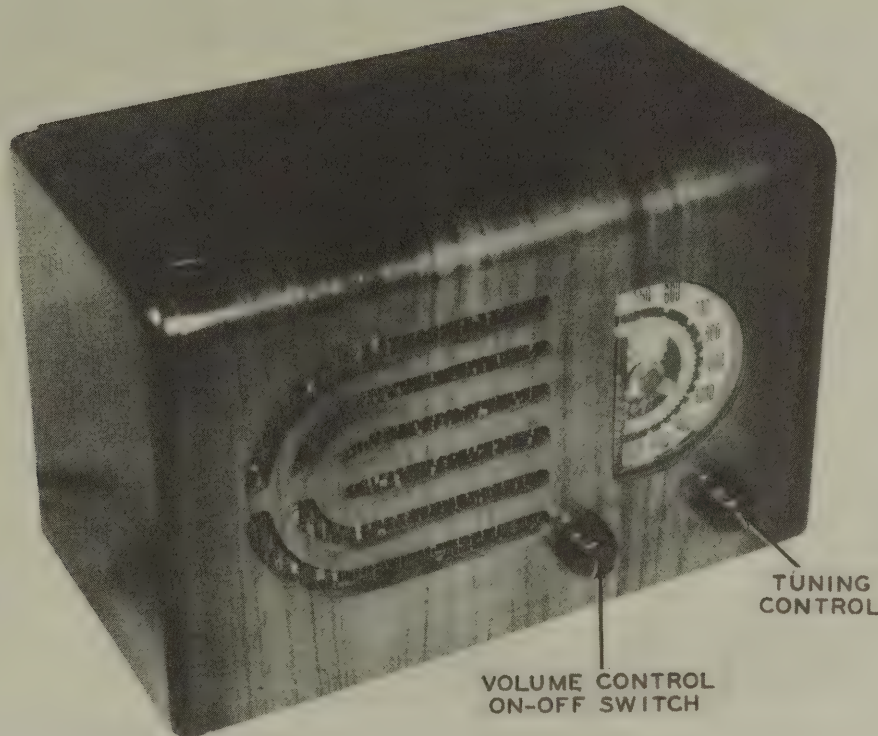
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LA6	1.6 ohms	51K ohms	215K ohms	125K ohms	3.6MEG ohms	1NF ohms	0 ohms	0 ohms
2	1LN5	1.6 ohms	51K ohms	51K ohms	0 ohms	3.2MEG ohms	1NF ohms	0 ohms	0 ohms
3	1LH4	1.6 ohms	1.2MEG ohms	1MEG ohms	3.6MEG ohms	4.5MEG ohms	1NF ohms	0 ohms	1NF ohms
4	1A5GT	1NF ohms	1.6 ohms	51K ohms	56K ohms	2.2MEG ohms	53K ohms	0 ohms	1NF ohms
5	1A5GT	540 ohms	1.6 ohms	51K ohms	51K ohms	2.4MEG ohms	1.05MEG ohms	0 ohms	540 ohms

- 1 - DC Voltage measurements are at 20,000 ohms per volt;
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- 5 - Volume control at maximum, no signal applied for voltage measurements.



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. RF stage gain values measured with 5 volts fixed bias should not be considered as representing true sensitivity of set under normal conditions.

ULTRADYNE
MODEL L-46



ULTRADYNE MODEL L-46

ULTRADYNE
MODEL L-46

TRADE NAME Ultradyne Model L-46 MANUFACTURER Regal Electronics Corp., 20 W. 20th St., New York, N.Y. TYPE SET AC - DC Superheterodyne - Self Contained Loop Antenna TUBES (SIX) Types, 14Q7 Converter, 14A7 1st IF Amp., 14A7 2nd IF Amp., 14B6 Det.-AVC-AF, 35A5 Power Output, 35Y4 Rectifier. POWER SUPPLY 117 Volts AC-DC TUNING RANGE—BROADCAST 550-1650KC RATING - .260 Amps. @ 117V AC SHORT WAVE						
ALIGNMENT INSTRUCTIONS Before aligning receiver tune to high freq. end of dial and set pointer at 1650. Use isolating transformer if available. If not, connect capacitor in series with low side of signal generator to chassis. Volume control at maximum volume position and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1	High side to ant stator section of tuning gang. Low side to chassis.	455KC	High freq. end of dial (gang fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMF	High side to ant. lead. Low side to chassis.	1450KC	Set point. to 1450 on dial.	"	A5	" " " "
"	"	1550KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		ULTRADYNE PART No.	STANDARD REPLACEMENT		
1	Converter	14C7	14C7	9AL	
2	1st IF amp.	14A7	14A7	9V	
3	2nd IF amp.	14A7	14A7	9V	
4	Det.-AVC-AF	14B6	14B6	9W	
5	Power output	35A5	35A5	9AA	
6	Rectifier	35Y4	35Y4	9AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES AND INSTALLATION NOTES
		ULTRADYNE PART No.	MALLORY PART No.	SOLAR PART No.	
7A	50 CAP. 150 VOLT	FP214		EL-25	Filter
8	.005	TP408	S-3-005	TC-25	35.5 Plate bypass
9	.01	TP421	S-4-01	TC-11	audio Coupling
10	.1	TP423	S-4-01	TC-11	audio Plate Decoupling
11	.05	TP421	S-4-01	TC-11	audio Coupling
12	.05	TP423	S-4-05	TC-15	RF bypass Pwr. Supp.*
13	.05	TP423	S-4-05	TC-15	AVC Filter
14	.05	TP423	S-4-05	TC-15	Plate Filter
15	.05	TP423	S-4-05	TC-15	AVC Filter
16	.05	TP423	S-4-05	TC-15	Conv. Screen bypass
17	.05	TP423	S-4-05	TC-15	AVC Filter
18	.05	TP423	S-4-05	TC-15	1st IF Screen bypass
19	.05	TP423	S-4-05	TC-15	Line Filter
20	.005	TP408	S-3-005	TC-25	ant. Coupling
21	150	MC236	MO.5-315	LM-315	Audio Plate Bypass
22	250	MC240	MO.5-325	LM-325	RF bypass Diode
23	500	MC240	MO.5-325	LM-325	IF Coupling
24	250	MC240	MO.5-325	LM-325	Osc. Grid Capacitor
25	240	MC240	MO.5-325	LM-325	Fixed Padder *

*Not used in all models.

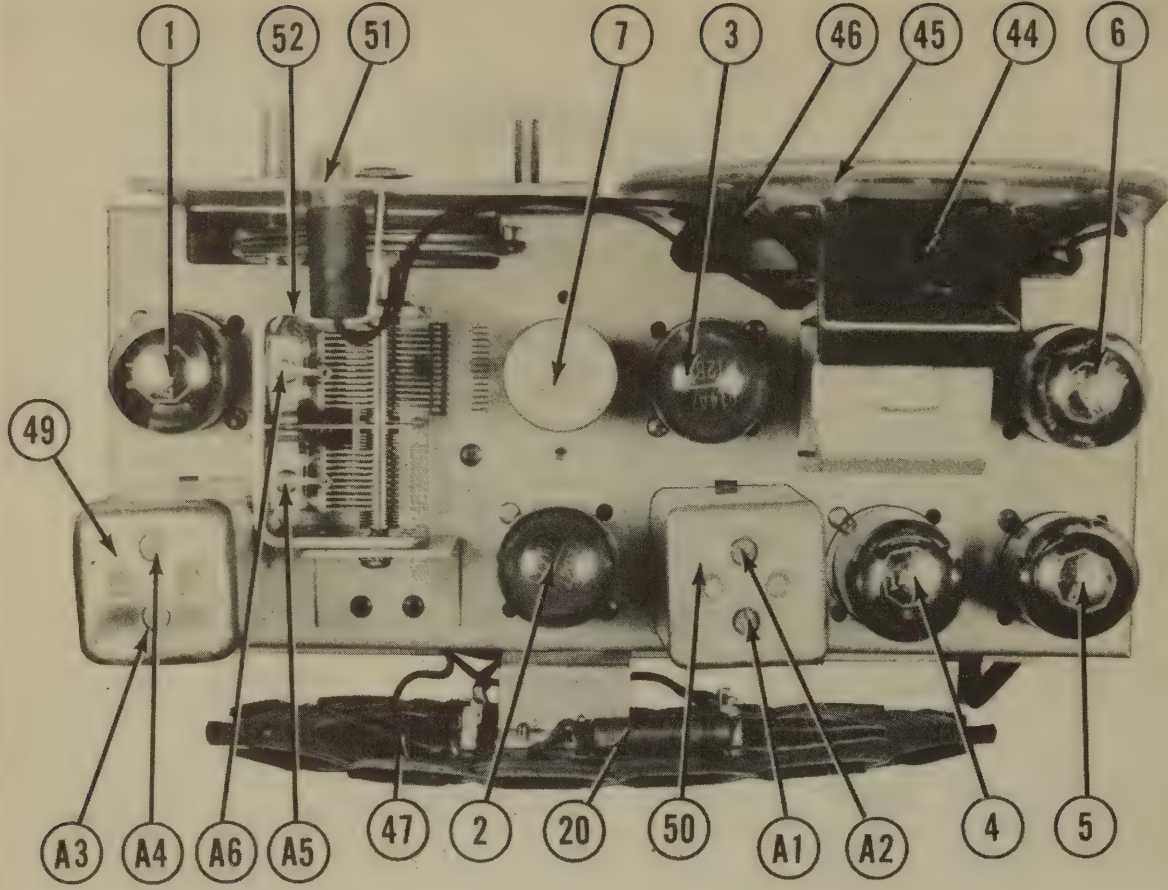
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		ULTRADYNE PART No.	MALLORY PART No.	IRC PART No.	
26A	500KΩ	D-9910	NR48	D13-133	Volume Control
B	Shaft	"	Not Req.	A	Attach to 28A per instructions
C	Switch	"	M26	41	"

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		ULTRADYNE PART No.	WATTS	IRC PART No.	
27	25KΩ			BTS-22K	Red-Grn.-Or. Osc. Grid
28	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
29	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. " "
30	1 Meg.			BTS-1 Meg.	Br.-Blk.-Grn. " "
31	100KΩ			BTS-100K	Br.-Blk.-Grn. 1st IF Cathode
32	500Ω			BTS-470	Grn.-Blk.-Br. Decoupling
33	500Ω			BTS-470	Grn.-Blk.-Br. " "
34	100KΩ			BTS-100K	Br.-Blk.-Vl. 1st IF Screen Dropping
35	10KΩ			BTS-10K	Br.-Blk.-Or. 1st IF Plate Load
36	500Ω			BTS-470K	Grn.-Blk.-Br. " Cathode
37	500Ω			BTS-470	Grn.-Blk.-Br. " " Grid
38	10 Meg.			BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
39	250KΩ			BTS-220K	Red-Grn.-Vl. " Plate Load
40	100KΩ			BTS-100K	Br.-Blk.-Vl. 1st AF Plate Filter
41	500KΩ			BTS-470K	Grn.-Blk.-Vl. Output Grid
42	150Ω			BW-2-150	Br.-Grn.-Br. Output Cathode
43	500Ω			BTA-470	Grn.-Blk.-Br. Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	ULTRADYNE PART No.	STANCOR THORDARN PART No.	
44	2200Ω 3-35Ω	170Ω .5Ω	A-3876	T-14582	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	ULTRADYNE PART No.	JENSEN PART No.	
45	PM	3-35Ω		ST-107	
46	CONE DIA. 4-3/4"	VC DIA. 1/2"			NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

R F COILS

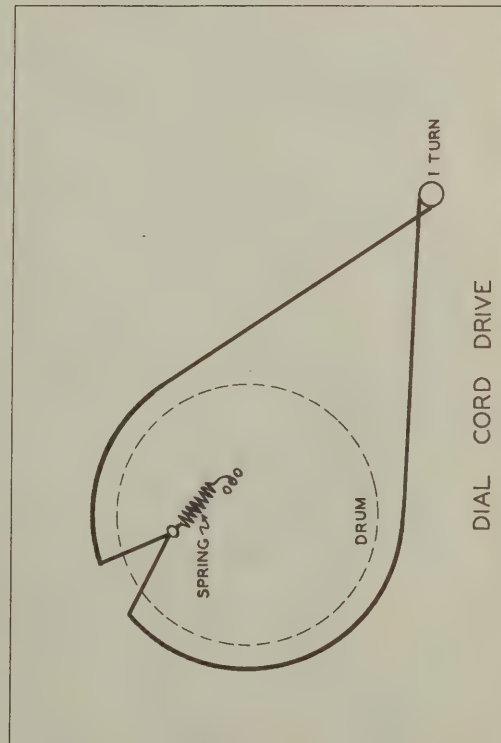
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	ULTRADYNE PART No.	MEISSNER PART No.	
47	Loop Ant.	.1Ω	1.1Ω			
48	Osc. Coil	.3Ω	3.2Ω			
49	Input IF	23.3Ω	23.5Ω		14-1040	
50	Output IF	23.7Ω	24Ω		16-6853	
					16-6860	

DIAL LIGHT

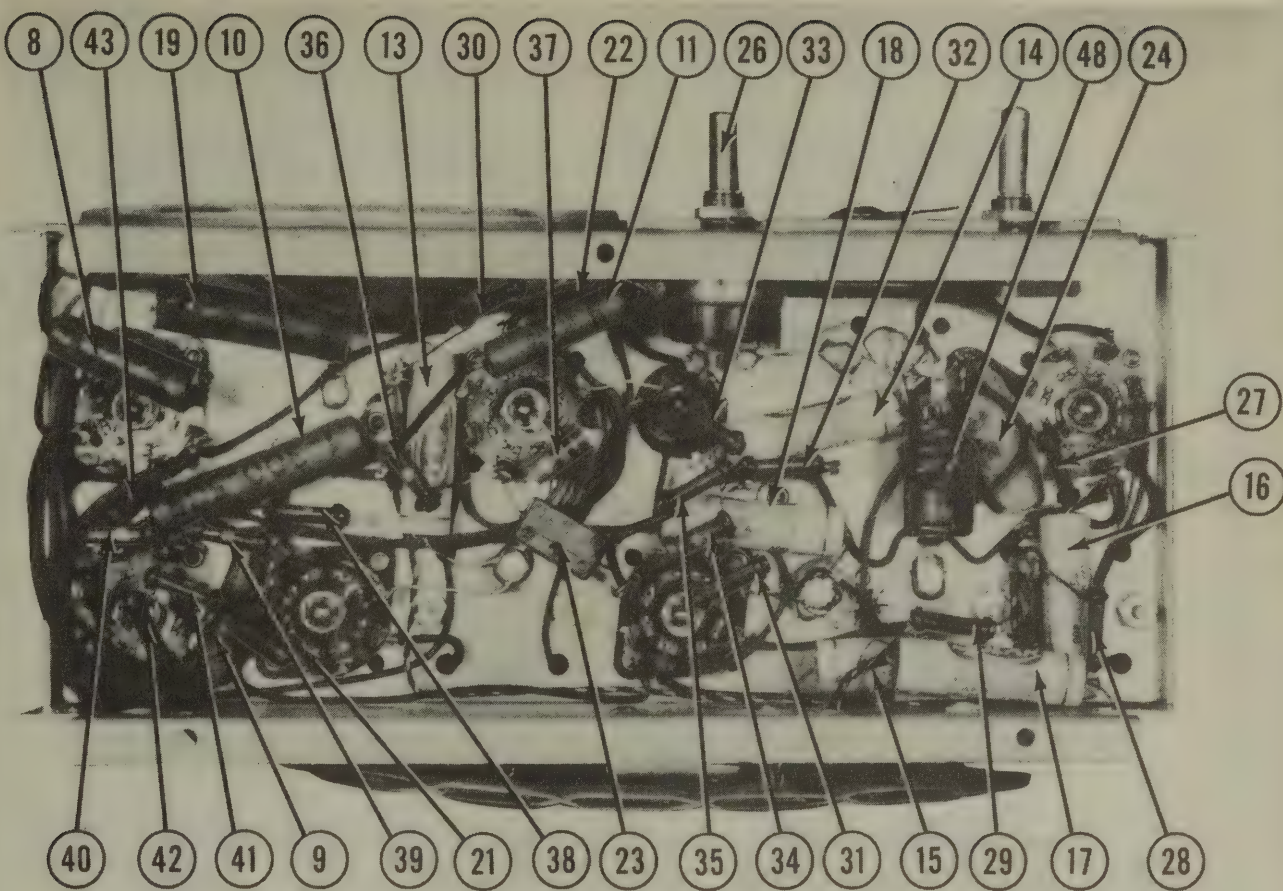
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ULTRADYNE PART No.		
51	bayonet	6-8	0.15	brown			Type 47

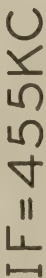
MISCELLANEOUS

ITEM No.	PART NAME	ULTRADYNE PART No.	NOTES
52	Tuning Cap.		2 uang Variable Cap.



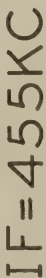
CHASSIS—BOTTOM VIEW





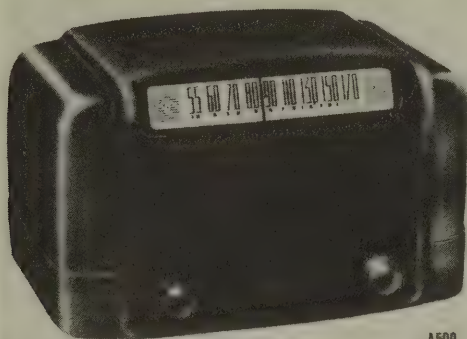
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	25.5VAC	94VDC	94VDC	-5.4VDC	OV.	OV.	OV.	37VAC
2	14A7	13VAC	84VDC	45VDC	1-9VDC	OV.	OV.	1.9VDC	25.5VAC
3	14A7	37VAC	105VDC	105VDC	3.6VDC	OV.	OV.	3.6VDC	48.5VAC
4	14B6	13VAC	60VDC	-3VDC	OV.	OV.	-6VDC	OV.	OV.
5	35A5	85VAC	108VDC	105VDC	92VDC	OV.	OV.	5.9VDC	48.5VAC
6	35Y4	117VAC	112VAC	108VDC	112VAC	5.9VDC	OV.	117VDC	85VAC

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	24 Ω	105 K Ω	105 K Ω	21.5 K Ω	0 Ω	3.5 MEG	.25 Ω	36 Ω
2	14A7	12 Ω	115 K Ω	205 K Ω	1000 Ω	0 Ω	2.6 MEG	1000 Ω	24 Ω
3	14A7	36 Ω	105 K Ω	105 K Ω	490 Ω	0 Ω	2.2 MEG	490 Ω	48 Ω
4	14B6	12 Ω	455 KC	10 MEG	0 Ω	0 Ω	470 K Ω	0 Ω	0 Ω
5	35A5	80 Ω	105 K Ω	105 K Ω	205 K Ω	1 N F	540 K Ω	120 Ω	48 Ω
6	35Y4	108 Ω	105 Ω	105 K Ω	105 Ω	125 Ω	0 Ω	10 K Ω	80 Ω

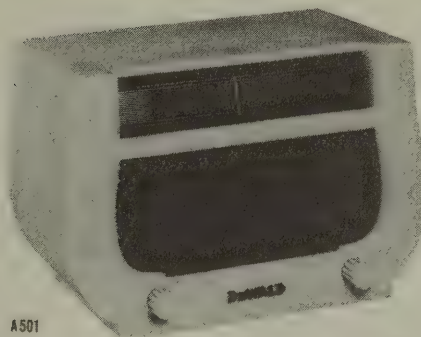


1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 5\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

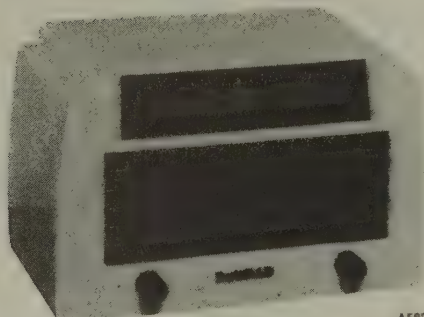
DEWALD
MODELS A500, A501, A502, A503



A500



A501



A502



A503

DEWALD MODEL A500

DEWALD
MODELS A500, A501, A502, A503

TRADE NAME Dewald Model A500, A501, A502, A503
MANUFACTURER Dewald Radio Mfg. Corp., 440 Lafayette St., New York 3, N.Y.
TYPE SET AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE) Types 12SA7 Converter, 12SK7 IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier

POWER SUPPLY 105-125 Volts AC-DC

RATING - .230 Amps. @ 117V AC

TUNING RANGE—BROADCAST 525-1720KC

SHORT WAVE

ALIGNMENT INSTRUCTIONS

Use isolating transformer if available. Volume control at maximum and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
Direct	High to ant. lead. Low side in series with .1 MFD to chassis.	455KC	High freq. end of dial (Gang open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
"	"	1720KC	"	"	A5	" " " "
"	"	1500KC	1500KC	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		DEM'LD PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		DEM'LD PART No.	MALLOY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	CAP. 30	2002	2N513	M-2X30-150	TA-230	Filter - Yellow
7	150					
8	30					
9	150					
10	30					
11	150					
12	30					
13	150					
14	30					
15	150					

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		DEM'LD PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	RESIST-ANCE 500KΩ	3002	MR45			Volume Control
B	1					Attach to 16A per instructions
C	Switch		Not Req.			" " " " " "

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		DEM'LD PART No.	MALLOY PART No.	IRC PART No.		
17	RESISTANCE 22KΩ	3000-22K				Red-Red-Or. Osc. Grid
18	2.2 Meg.	3000-2.2 Meg	BTS-22K			Red-Red-Grn. AVC Network
19	4.7 Meg.	3000-4.7 Meg	BTS-4.7 Meg.			Yl.-Vl.-Grn. 1st AF Grid
20	470KΩ	3000-470K	BTS-470K			Yl.-Vl.-Yl. 1st AF Plate Load
21	470KΩ	3000-470K	BTS-470K			Yl.-Vl.-Yl. Output Grid
22	150Ω	3000-150Ω	BW-3-150			Br.-Grn.-Br. Output Cathode
23	2700Ω	3001-2700				Red-Vl.-Red Filter
24	18Ω	3000-18Ω	BW-3-18			Br.-Gray-Blk. Rectifier Ballast
25	680Ω	3000-680Ω	BTS-680			Blue-Gray-Br. Osc. Cathode-See Note 1
26	680Ω	3000-680Ω	BTS-680			Blue-Gray-Br. Ant. Loading-" "

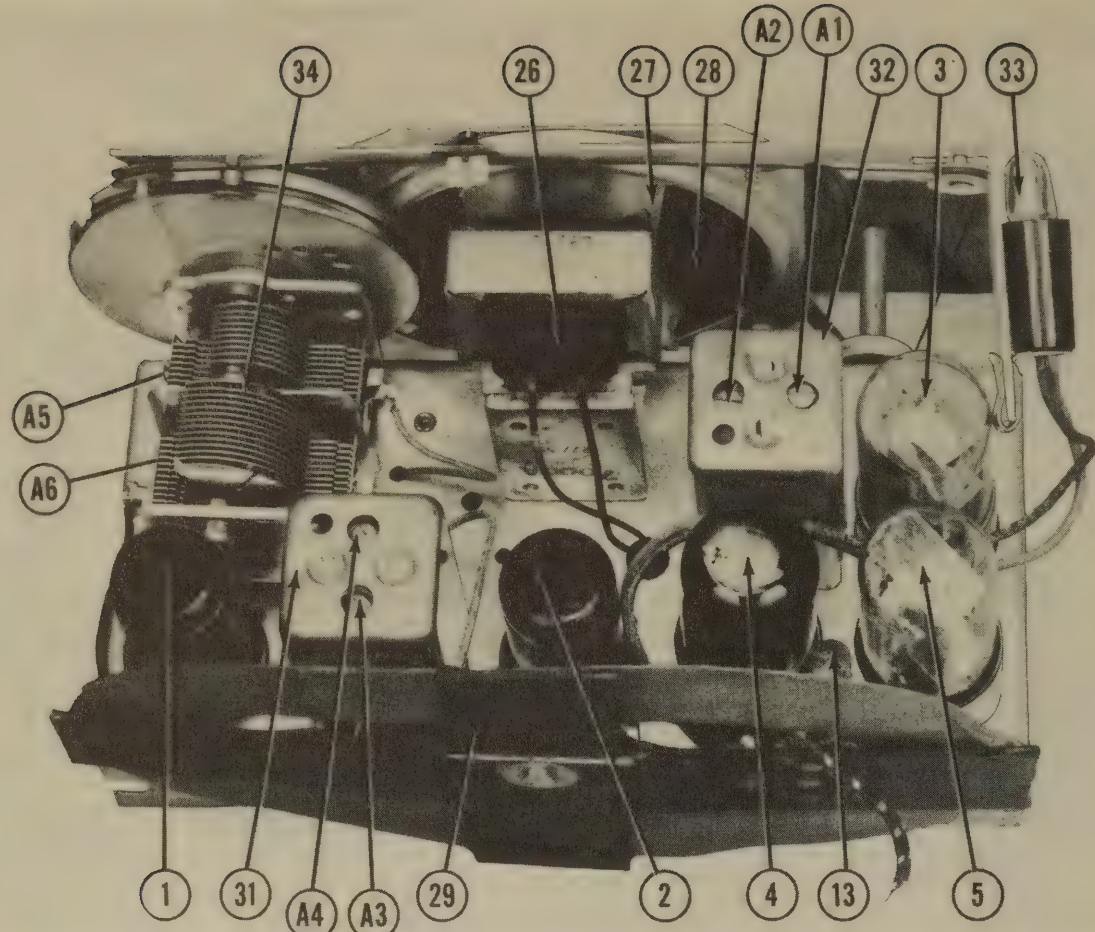
Note 1 - Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		DEM'LD PART No.	MALLOY PART No.	IRC PART No.	THORDARN PART No.	
27	IMPEDANCE PRI. SEC. 2500Ω 4Ω	160Ω	.55Ω	Part of 7000	A-38761	T-14S621

bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		DEWALD PART No.	JENSEN PART No.	
28	FIELD PM VC IMP. 42	7000	ST-113	
29	CONV. DIA. VC DIA. 3-15/16"			NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT

R F COILS

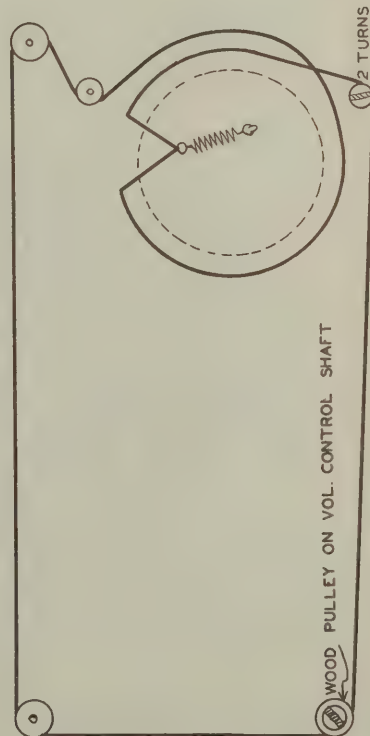
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	DEWALD PART No.	WEISSNER PART No.	
30	Loop int.	02	1.52	1001		
31	Use. Coil		6.12	1003	*14-1040	*add 50 MFD cap. from grid to high side tuning cap.
32	Input IF	14.52	15.52	1000	16-8658	
33	Output IF	292	292	1002	16-8660	

DIAL LIGHT

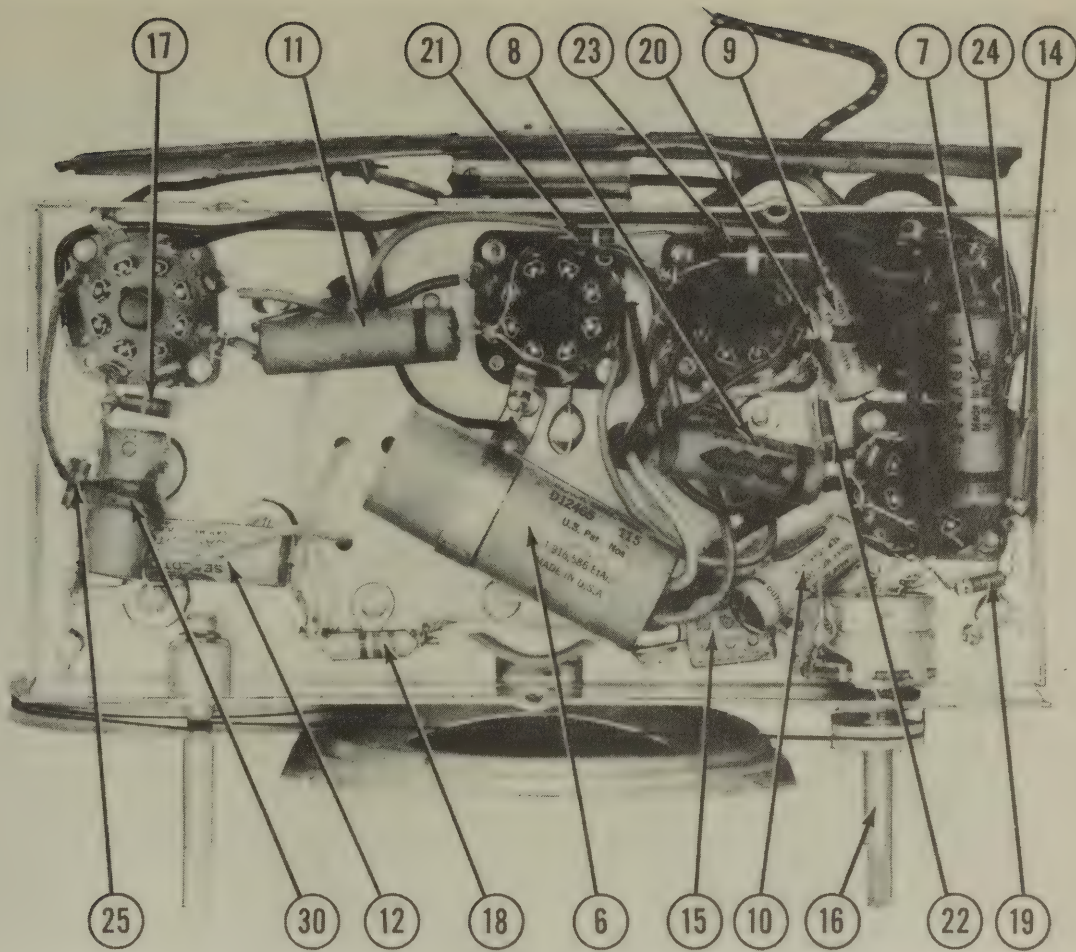
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	DEWALD PART No.	
34	Bayonet	6-3	0.15	Brown		Type 47

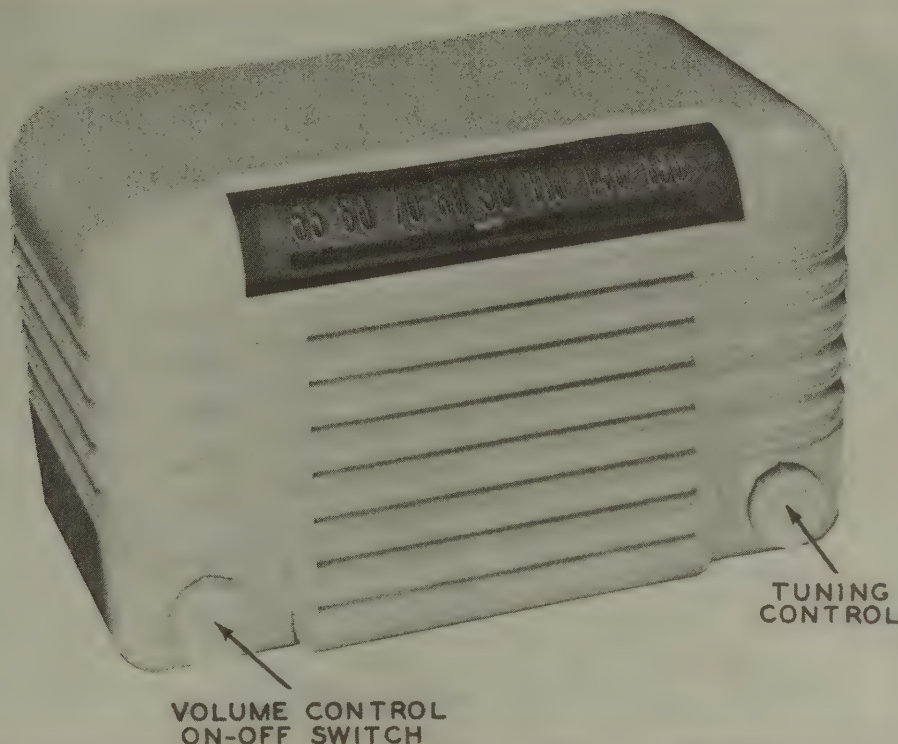
MISCELLANEOUS

ITEM No.	PART NAME	DEWALD PART No.	NOTES
35	Tuning Cap. Dial Scale Cabinet	2003 6000 4004	2 Gang Variable Cap.
"	"	4281B	Model A-500
"	"	4000	" A-501
"	"	4016	" A-502
"	"	4017	" A-503
"	Knob	4010	Models A-500 & A-503
"	"	4003	Model A-501
"	"		" A-502



CHASSIS—BOTTOM VIEW





HOFFMAN MODEL A200

TRADE NAME		Hoffman Model A200 (Ch. No. 103)				
MANUFACTURER		Hoffman Radio Corp., 3430 So. Hill Street, Los Angeles, California				
TYPE SET		AC - DC Superheterodyne - Self Contained Loop Antenna				
TUBES (FIVE)		Types, 12SA7 Converter, 12SG7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.				
POWER SUPPLY		117 Volts AC		RATING - .230 Amps. @ 117V AC		
TUNING RANGE—BROADCAST		540-1600KC		SHORT WAVE		
ALIGNMENT INSTRUCTIONS						
Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to pin #8 (grid) 12SA7. Low side to B-.	455KC	Point of no interfering signal.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. Use isolation transformer if available. If not connect isolating capacitor in series with low lead to B- and decrease dummy ant. to .001 MFD to prevent excessive hum modulation.
	Loop	1600KC	Tuning gang fully open (min. cap.)	"	A5	Adjust for maximum output. Connect output of signal generator to loop of few turns of wire and radiate signal into receiver loop.
	"	1400KC	Tune in 1400 KC signal.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		HOFFMAN PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SQ7	12SQ7	8BK	
3	Det.-AVC-AF	12SC7	12SC7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	HOFFMAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	50	150	4201	FP214	DY-50-30-150	EL-35	UF6BJ34
B	30	150			S-6-01	TC-11	DT6S1
7	.01	600	4103	TP410	S-4-1	TC-11	DT4P1
8	.1	200	4111	TP428	S-4-1	TC-12	DT4S2
9	.02	400	4106	TP423	S-4-02	TC-15	DT4S5
10	.05	200	4100	TP426	S-4-05	TC-15	DT4S5
11	.005	600	4102	TP408	S-6-005	TC-25	DT6D5
12	.05	200	4108	TP428	S-4-05	TC-15	DT4S5
13	.005	600	4102	TP408	S-6-005	TC-25	DT6D5
14	.05	200	4100	TP426	S-4-05	TC-15	DT4S5
15	.005	600	4102	TP408	S-6-005	TC-25	DT6D5
16	.270	500	4001	MC540	M0.5-325	TC-25	DT6D5
17	270	500	4001	MC540	M0.5-325	TC-25	DT6D5
18	270	500	4001	MC540	M0.5-325	TC-25	DT6D5
19	100	500	4000	MC235	M0.5-31	TC-15	DT4S5

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST. ANCE	WATTS	HOFFMAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
20A	500K Ω	1	4802	M348	D13-133	M-60-Z	Volume Control
B	Start		Not Req.	Not Req.	A	Not Req.	Attach to 20A per Instructions
C	Switch		Not Req.	M26	41	SW-A	"

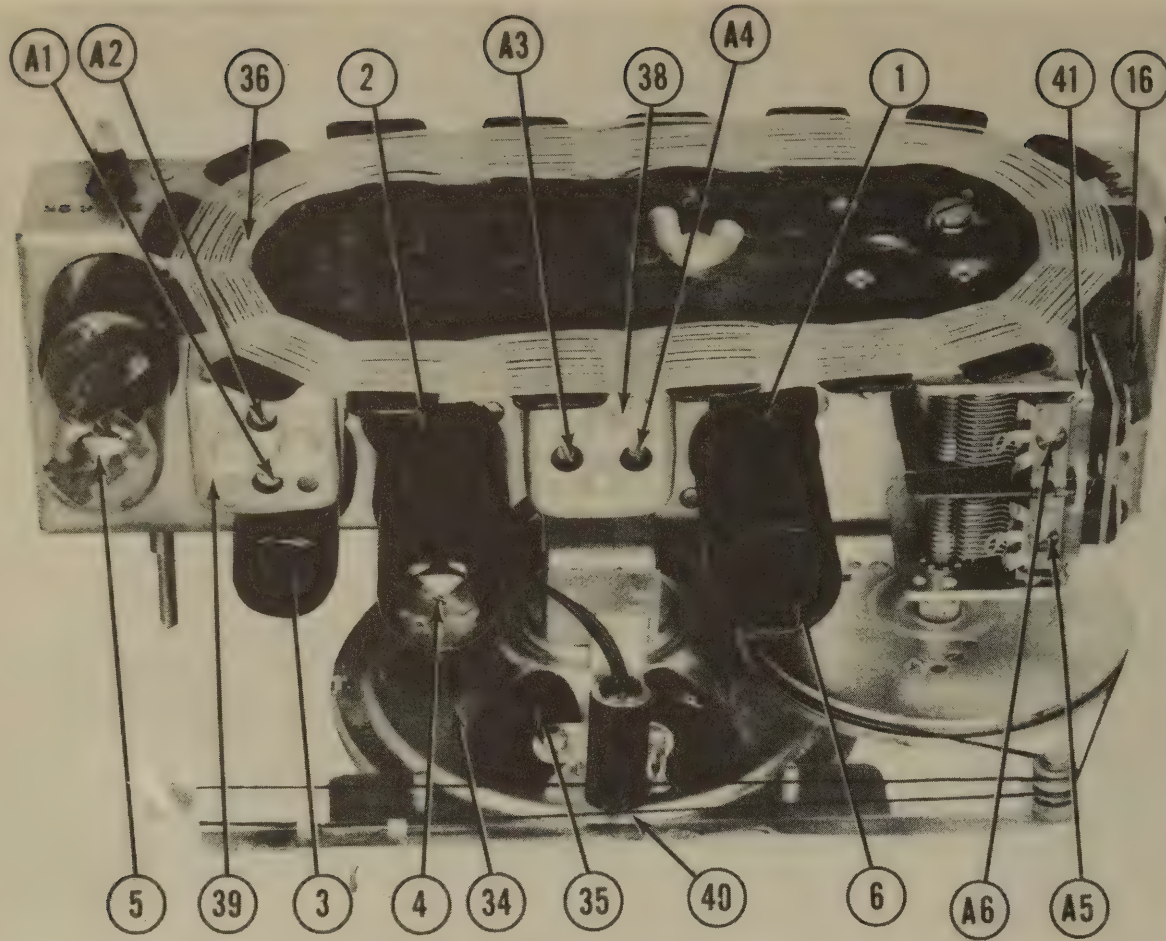
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA				IDENTIFICATION CODES
	RESISTANCE	WATTS	HOFFMAN PART No.	MALLORY PART No.	IRC PART No.	SPRAGUE PART No.	
21	22K Ω		4501		BTS-22K		Red-Red-Or. Osc. Grid
22	60 Ω		4524		BW-2-68		Blue-Blk.-Blk. Converter Cathode
23	2.2 Meg.		4502		BTS-2.2 Meg		Red-Red-Grn. AVC Network
24	47K Ω		4504		BTS-47K		Yl.-Vi.-Or. Diode Load
25	10 Meg.		4505		BTS-10 Meg.		Br.-Blk.-Blue 1st Af Grid
26	220K Ω		4500		BTS-220K		Red-Red-Yl. Plate Load
27	100K Ω		4511		BTS-100K		Br.-Blk.-Yl. Plate Filter
28	470K Ω		4506		BTS-470K		Yl.-Vi.-Yl. Output Grid
29	150 Ω		4510		BW-2-150		Br.-Grn.-Br. Output Cathode
30	470K Ω		4506		BTS-470K		Yl.-Vi.-Yl. Line Isolating
31	500 Ω		4500		AB-500		Filter
32	47 Ω		4508		BW-2-47		Yl.-Vi.-Blk. Surge Limiter

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		HOFFMAN PART No.	STANCOR PART No.	
33	1600 Ω	3.25 Ω	180 Ω	5101	A-3665	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		HOFFMAN PART No.	JENSEN PART No.	
34	FIELD VC IMP. 12-250	9003	ST-105	
35	CONV DIA. VC DIA. 4-5/4 1/2	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	HOFFMAN PART No.	MESSNER PART No.	
36	Loop Ant. p.	00	2.20	5207		
37	Osc. Coil	1.40	5.90	5208	14-1040	
38	Input IF	12.70	12.80	5205	16-6658	
39	Output IF	12.80	120	5203	16-6360	

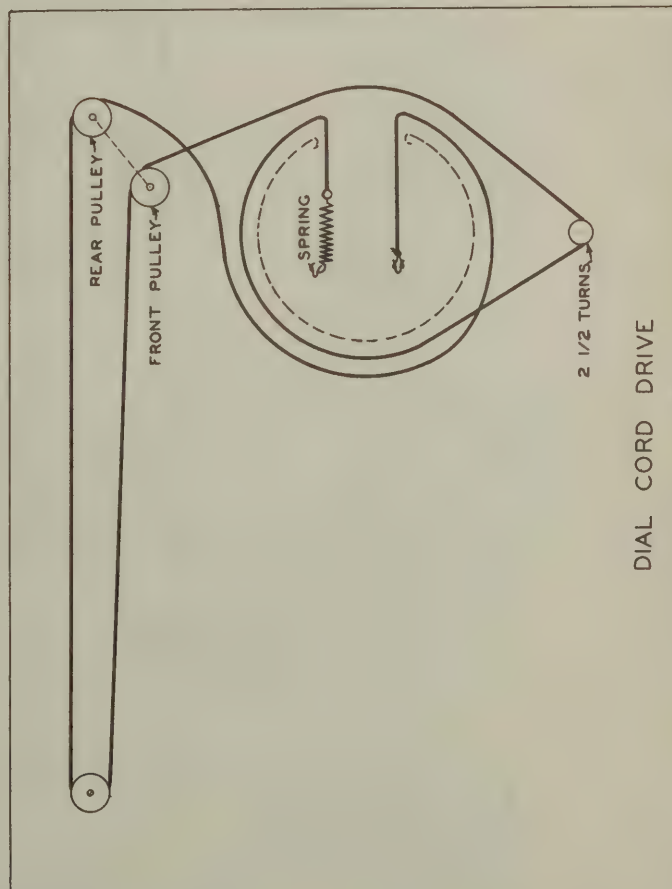
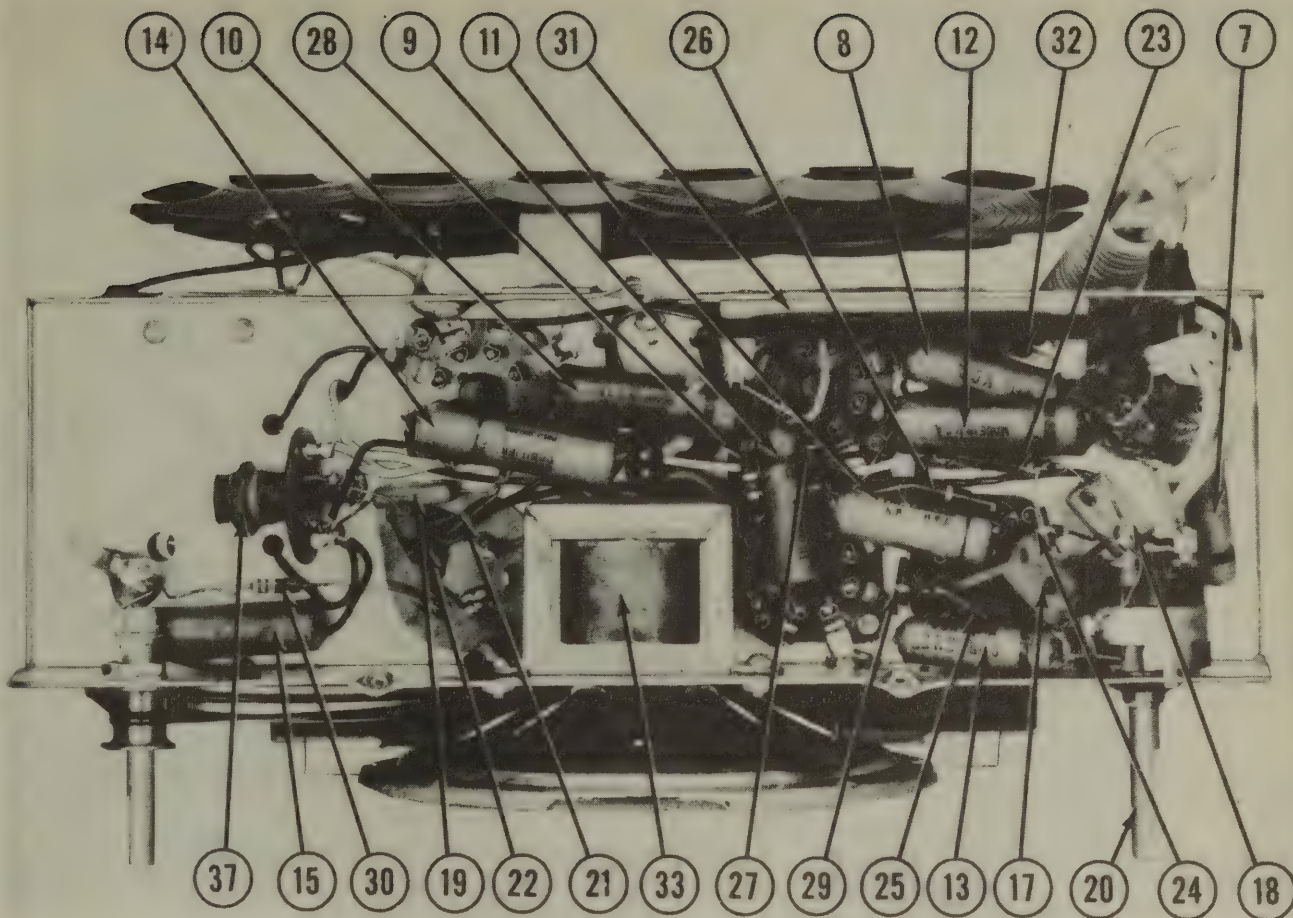
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	HOFFMAN PART No.	
40	Bayonet	6-8	0.15	Brown		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
41	Tuning Cap.	4401	2 Gang Variable Cap. (388-180MFP.)

CHASSIS—BOTTOM VIEW





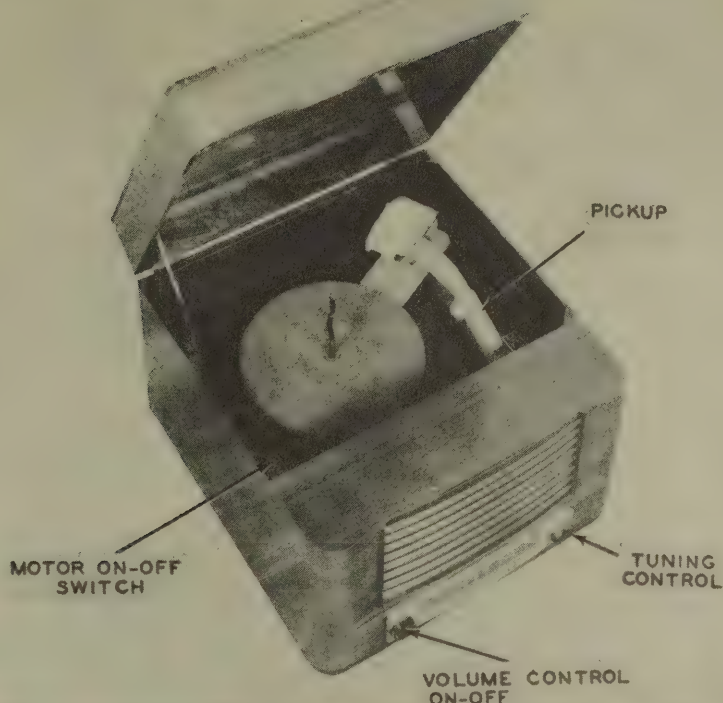
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12S A7	OV.	23VAC	86V DC	83VDC	-4.2VDC	57VDC	11.5VAC	35VDC
2	12S G7	OV.	35.2VAC	OV.	-3.7VDC	OV.	83VDC	23VAC	83VDC
3	12S G7	OV.	-6VDC	OV.	OV.	-2VDC	57VDC	OV.	11.5VAC
4	50L 6GT	OV.	87VAC	77VDC	83VDC	OV.	75VDC	35.2VAC	5.4VDC
5	35L 7GT	OV.	117VAC	12VAC	83VDC	11.2VAC	OV.	87VAC	112VDC

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	440 K Ω	23 Ω	700 K Ω	700 K Ω	21.5 K Ω	55 Ω	12.5 Ω	2.8 MEG
2	12SG7	440 K Ω	35 Ω	0 Ω	2.8 MEG	0 Ω	700 K Ω	23 Ω	700 K Ω
3	12SQ7	440 K Ω	10 MEG	0 Ω	0 Ω	520 K Ω	1.2 MEG	0 Ω	125 Ω
4	5616GT	440 K Ω	80 Ω	700 K Ω	700 K Ω	475 K Ω	1.05 MEG	35 Ω	145 Ω
5	3525GT	440 K Ω	108 Ω	105 Ω	700 K Ω	105 K Ω	1 N F	80 Ω	700 K Ω

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Normal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Folder 4

ADMIRAL
CHASSIS 5B1 PHONO



ADMIRAL CHASSIS 5B1

ADMIRAL
CHASSIS 5B1 PHONO

TRADE NAME Admiral Chassis 5B1 (Model 6RT43)
MANUFACTURER Admiral Corp., 3800 Cortland St., Chicago 47, Ill.
TYPE SET AC Comb. Superheterodyne Radio & Auto Phono. - Self Contained Loop Antenna
TUBES (FIVE) Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 117 Volts AC **RATING** .240 Amps. @ 117V AC
TUNING RANGE—BROADCAST 540-1630KC **SHORT WAVE**

ALIGNMENT INSTRUCTIONS

Check setting of dial pointer extremes as shown on dial diagram. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
250 MMFD	High side to ant. stator section of tuning gang. Low side to B-.	455KC	High freq. end of dial.	Across voice coil.	A1, A2, A3, A4.	Adjust for maximum output. Use isolation transformer or connect isolating capacitor in series with low lead to B-.
"	"	1630KC	"	"	A5	"
	Loop	1400KC	Tune in 1400 KC signal.	"	A6	Adjust for maximum output. With chassis and loop mounted in cabinet connect output of signal generator to loop of few turns and radiate signal into receiver loop. Remove plug button on top to gain access to A6.

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PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

TUBES

ITEM No.	USE	REPLACEMENT DATA		BMA BASE TYPE	INSTALLATION NOTES
		ADMIRAL PART No.	STANDARD REPLACEMENT		
1	Converter	128A7	128A7	8R	
2	IF Amp.	128K7	128K7	8N	
3	Det.-AVC-AF	128Q7	128Q7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		ADMIRAL PART No.	MAILORY PART No.	REPLACEMENT DATA			CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT			SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.		
6A	30	150	67A8	TN129	DSB-40+30+20	TA-330	EZ42215	Filter - Red	
B	30	150			150	UT-201		" - Yellow	
C	30	150				TA-530		" - Blue	
6B	50	150	67A3	2N520	M-50+30-150		BR13515	Filter	
B	30	150						"	
7	.05	400	64B1-22	TP428	S-4-05	TC-15		Line Filter	
8	.2	400	64A2-1	TP429	S-4-2	TC-2		Phono Coupling	
9	.2	400	64A2-1	TP429	S-4-2	TC-2		Line Isolating	
10	.02	400	64B1-24	TP423	S-4-02	TC-12		50L6 Plate Bypass	
11	.01	400	64B1-25	TP421	S-4-01	TC-11		Audio Coupling	
12	.01	400	64B1-25	TP421	S-4-01	TC-11		"	
13	.01	400	64B1-25	TP421	S-4-01	TC-11		Tone Compensation	
14	.01	400	64B1-25	TP421	S-4-01	TC-11		"	
15	.02	400	64B1-24	TP423	S-4-02	TC-12		Osc. Tuned Circuit	
16	.1	200	64B1-30	TP428	S-4-1	TC-1		AVC Filter	
17	.005	500	64B1-12	TP408	S-6-00E	TC-25		Ant. Coupling	
18	35	500	65B6-10	MC245	M0-5-35	LFM-35		Hum Neutralizer	
19	500	500	65B7-27	MC240	M0-5-275	LFM-325		Audio Plate Bypass	
20	250	500	65B7-22	MC240	M0-5-225	LFM-45		RF Bypass Diode	
21	50	500	65B7-11	MC225	M0-5-45	MS-42		Osc. Grid Cap.	
22	20	500	65B5-5					Fixed Trimmer	

*Used in earlier models.

†Not used in all models.

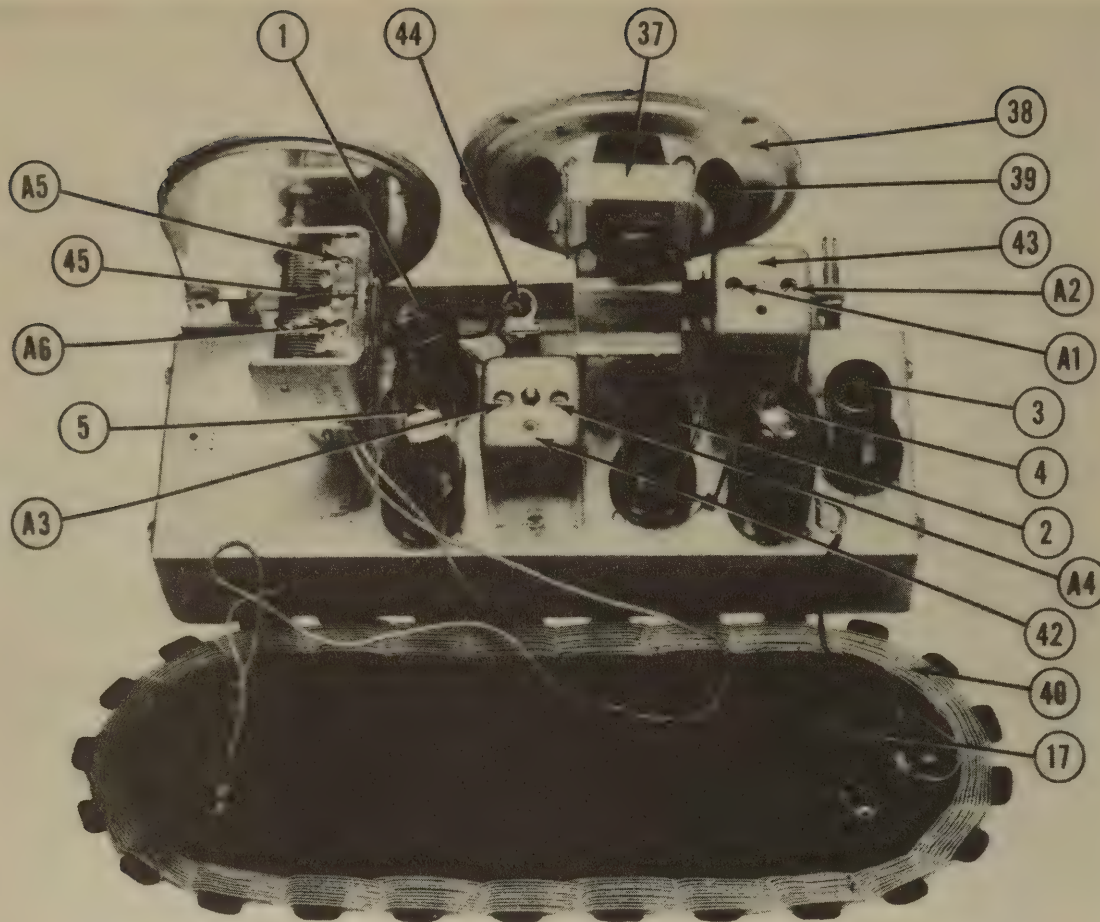
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		ADMIRAL PART No.	MAILORY PART No.	IRC PART No.	CLAROSTAT PART No.	
23A	500KΩ	75B3-2	DW283	D18-133XX	AT-92	Volume Control
B	Shaft	SS25		E	KSS-3	Attach to 23A per instructions
C	Switch	Not Req.	M26	41	SW-A	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		ADMIRAL PART No.	IRC PART No.	
24	22KΩ	60B8-223	BTS-22K	Red-Red-Or. Osc. Grid
25	1 Meg.	60B8-105	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
26	47KΩ	60B8-473	BTS-47K	Yl.-Vl.-Or. Tone Compensation
27	27KΩ	60B8-273	BTS-27K	Red-Vl.-Or.
28	10 Meg.	60B8-106	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
29	220KΩ	60B8-224	BTS-220K	Red-Red-Vl. 1st AF Plate Load
30	470KΩ	60B8-474	BTS-470K	Yl.-Vl.-Vl. Output Grid
31	150Ω	60B8-161	BW-4-150	Br.-Grn.-Br. Output Cathode
32	150KΩ	60B8-154	BTS-150K	Br.-Grn.-Vl. Line Isolating
33	100Ω	60B28-1	BTA-100	Br.-Blk.-Br. Filter
34	33Ω	60B28-3	BT-1000	Br.-Blk.-Red Filter
35			EM-2-33	Ur.-Or.-Blk. Surge Limiter-See Note 1

Note 1-Not used in all models.



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (0 CURRENT 1000%)	ADMITRAL PART No.	THORDARSON PART No.
36	67MA	319Ω	3.6H	74A1*	C-1711 T-14063

*Used in earlier production

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE PRI. SEC.	DC RES. PRI. SEC.	ADMITRAL PART No.	THORDARSON PART No.	
37	3000Ω 5.3Ω	285Ω 1.2Ω	A-3876†	T-135394	†Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD PM	VC IMP. SEC.	ADMITRAL PART No.	JENSEN PART No.	
38	4-3/4"	5.3Ω	78B4-3	ST-105	
39		1/2"			ONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER.

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	ADMITRAL PART No.	MEISSNER PART No.	
40A	Loop Ant.	Ω	1.3Ω	69B6		Used on model 6RT41 " " " models 6RT42, 6RT43
40B	Loop Ant.	Ω	1.3Ω	69B10		
41	Osc. Coil	Ω	.5Ω	69A5	14-1040	
42	Input IF	18Ω	18Ω	72B3	16-6658	
43	Output IF	21Ω	22Ω	72B4	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	ADMITRAL PART No.	
44	Bayonet	6-8	0.15	Brown	81A1-8	Type 47

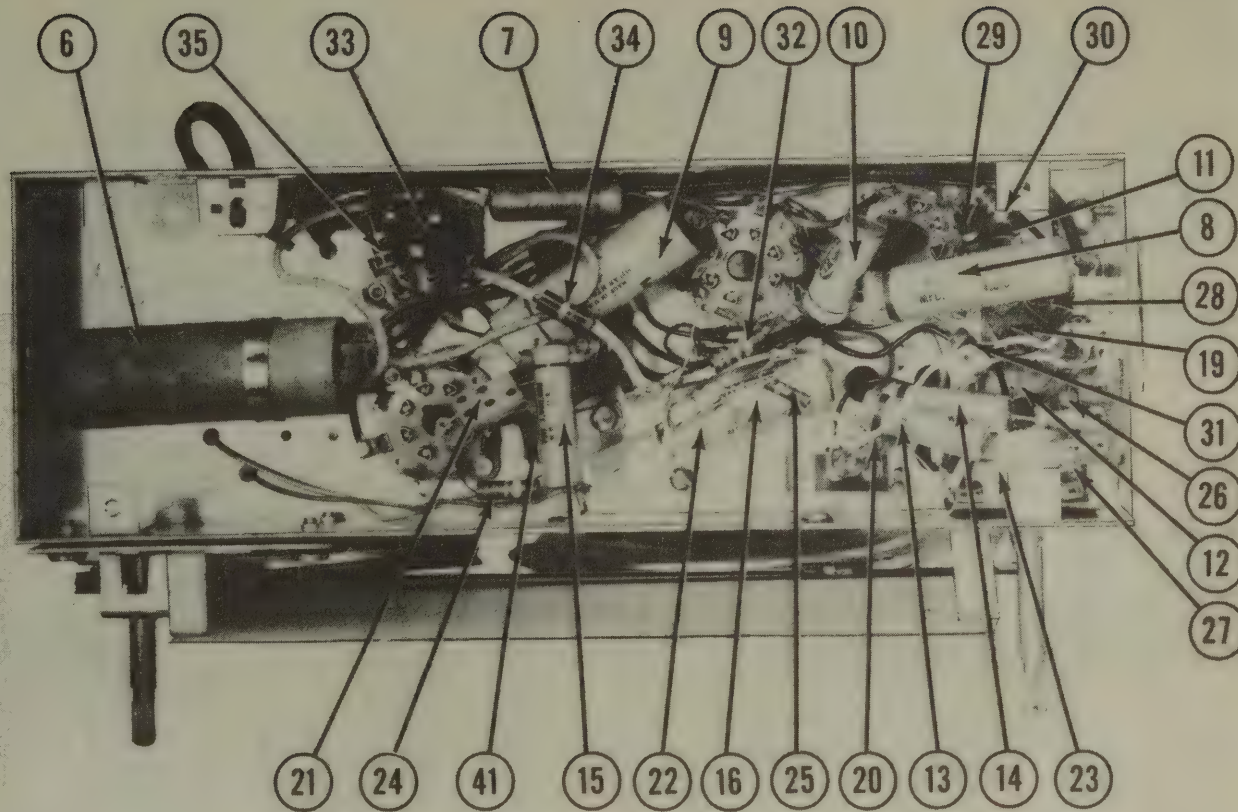
MISCELLANEOUS

ITEM No.	PART NAME	ADMITRAL PART No.	NOTES
45	Tuning Cap. Cabinet Body Knob Dial Scale Switch Crystal Phono. Motor	68A2 or P4975 34D2-11 33A1-2 21B4-1 77B1-11 77B1-44 409A1 407B3	2 Gang Variable Cap. Mahogany (Model 6RT41) Walnut-Mahogany Plastic Radio-Phono SPDT Motor Off-on SPST Cartridge Types 407B1 & 407B2 also used

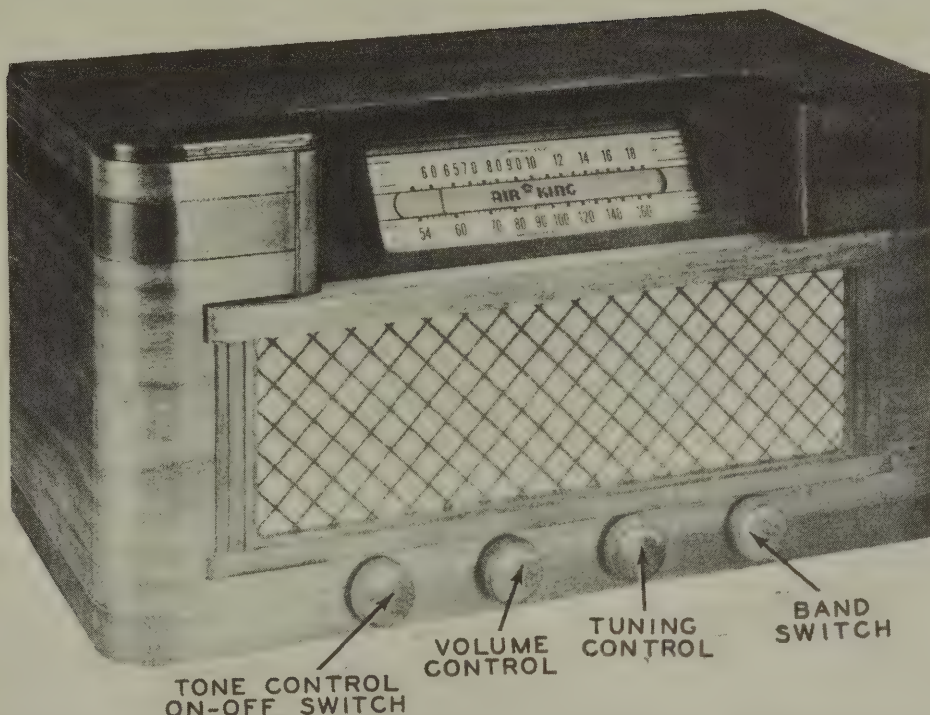
DISASSEMBLY INSTRUCTIONS

- 1 - Remove volume and tuning control push-on type knobs.
- 2 - Disconnect phono-motor plug.
- 3 - Disconnect phono-radio and phono-pickup plug from chassis.
- 4 - Remove clips holding antenna loop lead to cabinet.
- 5 - Remove two screws and washers holding antenna loop to cabinet.
- 6 - Remove two wood spacers.
- 7 - Remove four Phillips head screws and washers from chassis board. Remove chassis board.
- 8 - Remove four Hex screws with washers and lock washers from chassis board. Remove chassis from board.

CHASSIS—BOTTOM VIEW

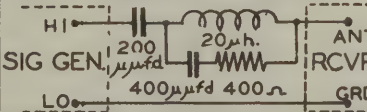


AIR-KING
MODEL 4604



AIR-KING
MODEL 4604

AIR-KING MODEL 4604

TRADE NAME Air-King Model 4604 MANUFACTURER Air-King Products Co., Inc., 1523-29 63rd St., Brooklyn, N.Y. TYPE SET AC 2 Band Superheterodyne - Self Contained Loop Antenna TUBES(SIX) Types, 7H7 Mixer, 7A4 Oscillator, 6SK7GT IF Amp., 7B6 Det.-AVC-AF, 6V6GT Power Output, 6X5GT Rectifier.							
POWER SUPPLY 105-125 Volts AC				RATING .430 Amps. @ 117V AC			
TUNING RANGE—BROADCAST 540-1600KC				SHORT WAVE 6-18MC			
ALIGNMENT INSTRUCTIONS Tone control in high position. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #6 (grid) of 7H7. Low side to chassis.	455KC	BC	540KC	Across voice coil	A1,A2, A3,A4, A5.	Adjust for maximum output
	Loop	1500KC	"	1500KC	"	A6, A7	Adjust for maximum output Connect output of signal generator to loop of few turns and radiate signal into receiver loop.
	"	600KC	"	600KC	"	A8	Rock gang and adjust for maximum output.
	"	1500KC	"	1500KC	"	A5	Adjust for maximum output
RMA standard	High side to ant. post. Low side to chassis.	18MC	SW	18MC	"	A9	Adjust for maximum output If two peaks can be obtained use one with trimmer screw further out.
"	"	16MC	"	16MC	"	A10	Adjust for maximum output
						RMA STANDARD 	

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA CASE TYPE	INSTALLATION NOTES
		AIR-KING PART No.	STANDARD REPLACEMENT		
1	Mixer	7H7	7H7	8V	
2	Oscillator	7A4	7A4	5AC	
3	IF Amp.	6SK7GT	6SK7GT	8N	
4	Det.-AVC-AF	7E6	7E6	8W	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES AND INSTALLATION NOTES
		AIR-KING PART No.	MALLORY PART No.	SOLAR PART No.	
7A	20	20102	TC75	M-20-450	Filter - Red
B	16		125569	DHS-2X16-450	" - Blue
C	18			UT-20	" - Green
8	25	20105	TC28	PR525-25	Cath. Bypass
9	.05		TP428	TA-25	Line Bypass
10	.02		TP423	TC-15	"
11	.01		TP434	TC-12	6V6 Plate Bypass
12	.01		TP421	TR-11	Audio Coupling
13	.005		TP408	S-10-01	Tone Control
14	.002		TP405	S-4-01	Audio Coupling
15	.002		TP423	S-6-005	RF Bypass Pwr. Supp.
16	.02		TP423	S-6-002	Screen Bypass
17	.02		TP421	S-4-1	7A4 Plate Bypass
18	.05		TP426	S-4-05	Cath. Coupling
19	.05		TP423	S-4-05	AVC Filter
20	.05		TP423	S-4-05	"
21	100		MC240	MO-5-325	Audio Plate Bypass
22	100		MC235	MO-5-31	RF Bypass Vol. Cont.
23	100		MC235	MO-5-31	RF Bypass Diode
24	3000		MC461	MO-5-23	Osc. Grid Cap. Fixed Fadder

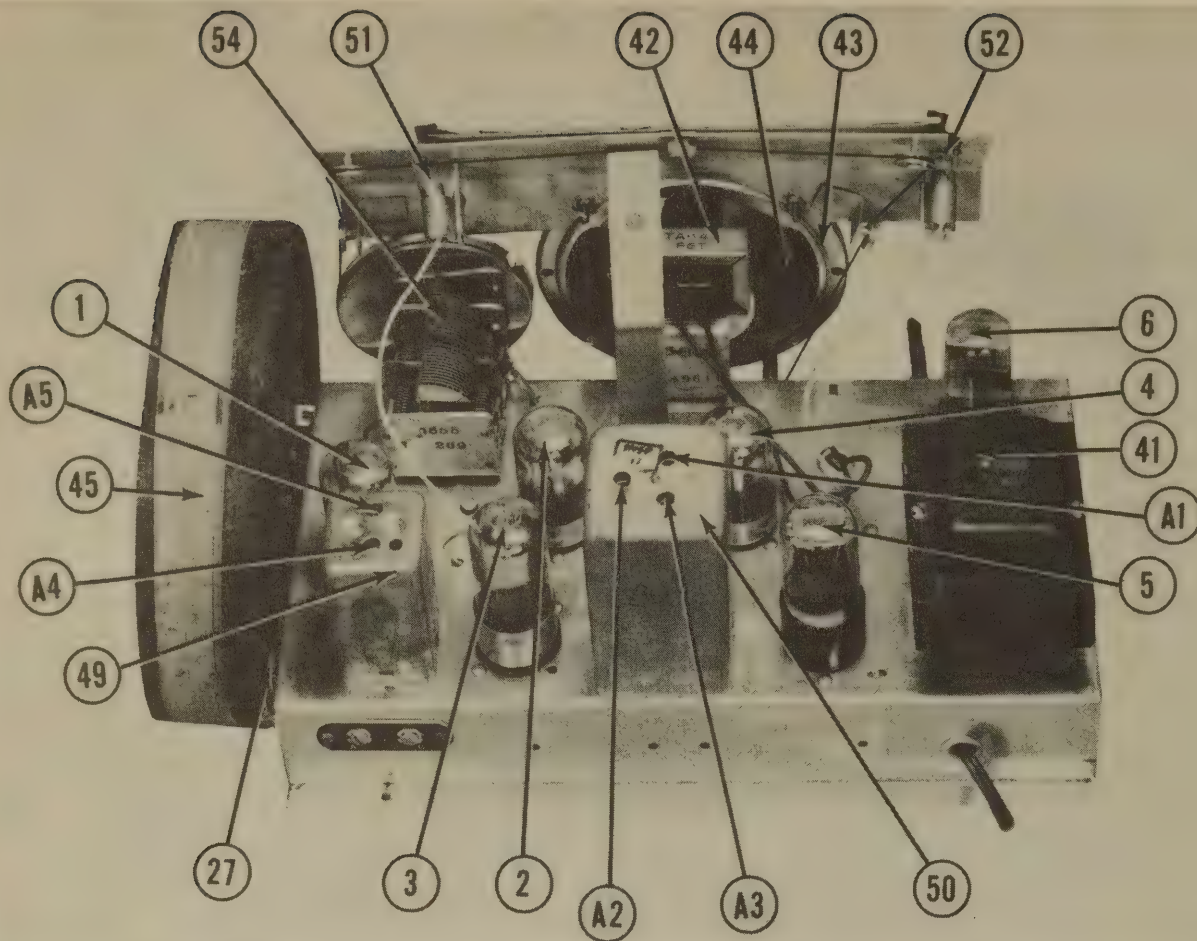
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		AIR-KING PART No.	MALLORY PART No.	CLAROSTAT PART No.	
25A	500KΩ	2470	MR48	M-60-Z	Volume Control
26A	250KΩ	2521	MR44	M-55-S	Attach to 25A per Instructions
26B	250KΩ				Tone Control
26C	Switch				Attach to 25A per Instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		AIR-KING PART No.	MALLORY PART No.	IRC PART No.	
27	100KΩ			BTS-1000	Br.-Blk.-Red Ant. Loading
28	220KΩ			BTS-2200	Red-Red-Red Mixer Cathode
29	47KΩ			BW-47	Yl.-Vi.-Blk. Parasitic Suppressor
30	22KΩ			BTS-22K	Red-Red-Or. Osc. Grid
31	10KΩ			BTS-10K	Br.-Blk.-Or. Osc. Plate Load
32	47KΩ			BTS-47K	Yl.-Vi.-Or. Screen Dropping
33	2.2 Meg.			BTS-2.2	Red-Red-Grn. AVC Network
34	47KΩ			BTS-47K	Yl.-Vi.-Or. Diode Load
35	10 Meg.			BTS-10	Red-Red-Yl. 1st Af Grid
36	220KΩ			BTS-220K	Red-Red-Yl. 1st Af Plate Load
37	470KΩ			BTS-470K	Yl.-Yl.-Yl. Output Grid
38	500Ω			BW-1-270	Or.-Blk.-Br. Output Cathode
39	150Ω			BTA-150Ω	Br.-Grn.-Red Filter
40	350Ω			BW-1-350	Or.-White-Br. Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	AIR-KING PART No.	STANCOR PART No.	
41	117VAC 200-200 450A	6.4VAC 2.5A		1089	P-6119*	*Drill new mounting holes

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	SEC.	AIR-KING PART No.	STANCOR PART No.	
42	3700Ω	3.05Ω	230Ω .62	Part of 5866	A-38561	bend mounting tabs down and file out slots. Mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	AIR-KING PART No.	JENSEN PART No.	
43	PM	3.05Ω	5866	ST-105	
44	4-5/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIR-KING PART No.	MEISSNER PART No.	
45	Loop Ant.	.2Ω	1.2Ω	28135		
46	SW Ant. Coil	.3Ω	0Ω	28137	14-1044	
47	EC OSC. #	5.8Ω		28136	14-1040	
48	SW #	0Ω		28138	14-1046	
49	Input IF	16Ω	19Ω	3323	16-6658	
50	Output IF	21.5Ω	23.8Ω	3522		

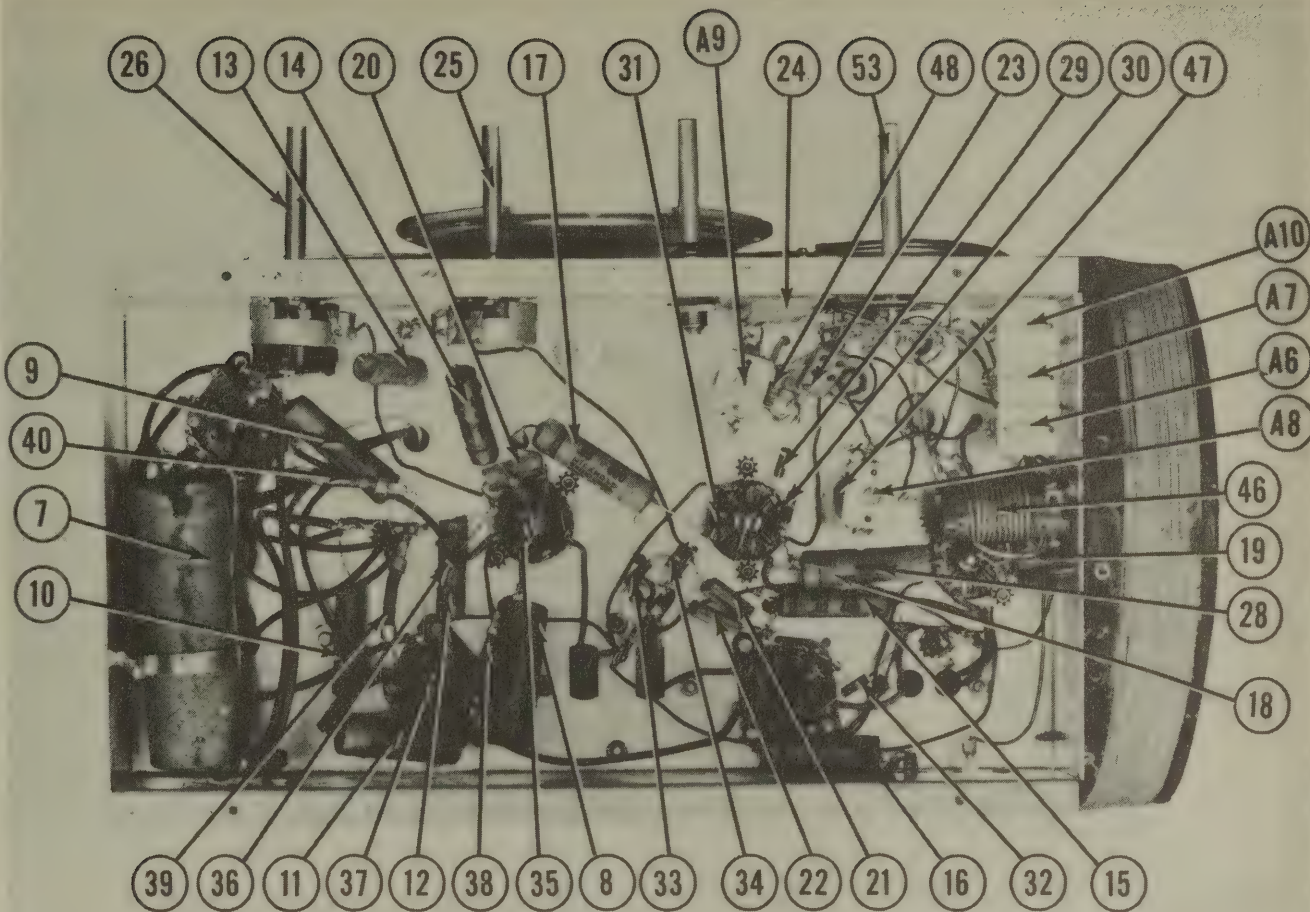
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	AIR-KING PART No.	
51	Bayonet	6-8	0.15	Brown	4911	Type 47
52		6-8	0.15	Brown	4911	"

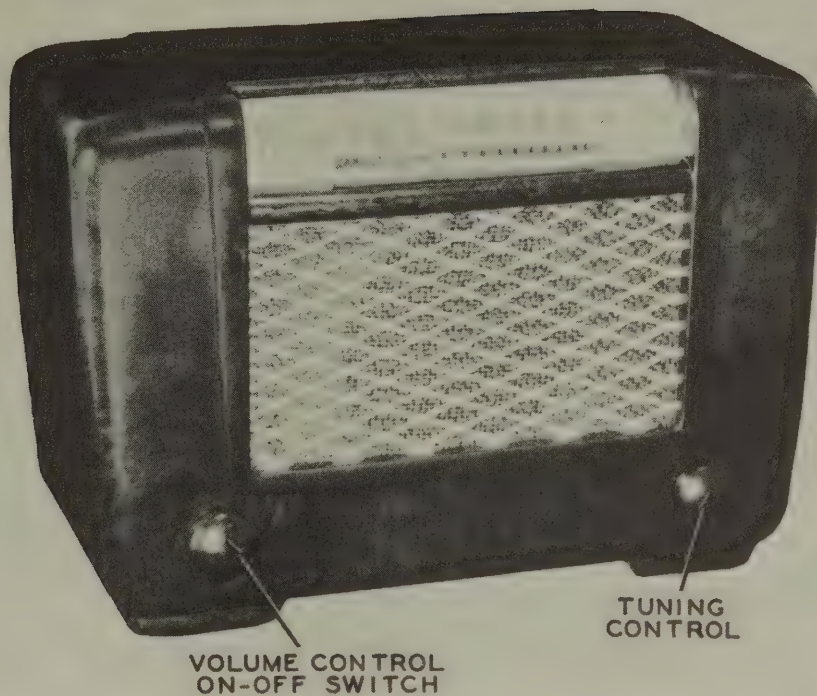
MISCELLANEOUS

ITEM No.	PART NAME	AIR-KING PART No.	NOTES
53	Band Switch	3784	
54	Tuning Cap. Cabinet	1655	2 Gang Variable Cap.
	Dial Scale	40109	
	Dial Pointer	4140	
	Knob	39136	Tone, On-Off
	"	39139	Band Switch
	"	39140	Tuning
	"	39141	Volume

CHASSIS-BOTTOM VIEW



PURITAN
MODELS 501X, 502X



PURITAN MODEL 502X

PURITAN
MODELS 501X, 502X

TRADE NAME Puritan Models 501X (Ch. 5D15WG), 502X (Ch. 5D25WG) SUPPLIER Pure Oil Co., 35 Wacker Dr., Chicago, Ill. TYPE SET AC - DC Superheterodyne - Self Contained Loop Antenna TUBES (FIVE) Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.						
POWER SUPPLY 117 Volts AC-DC RATING - .255 Amps. @ 117V AC TUNING RANGE-BROADCAST 540-1610KC						
ALIGNMENT INSTRUCTIONS Turn drive pulley to maximum clockwise position and set dial pointer over index line on diffuser strip as shown on dial diagram. Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #4 (grid) 12SK7 IF amp. Low side to B-.	455KC	High freq. end of dial. (Turn drive pulley full counter-clockwise)	Across voice coil	A1,A2.	Adjust for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to B- and decrease dummy ant. to prevent excessive hum modulation.
"	High side to pin #8 (grid) 12SA7. Low side to B-.	"	"	"	A3,A4.	"
"	"	1610KC	"	"	A5	"
50 MMFD	High side to ext. ant. clip on loop. Low side to chassis.	"	"	"	A6,A7.	Adjust for maximum output. A7 not used in all sets.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PURITAN PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	PURITAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AERVOX PART No.		CORNEILL-DUBILIER PART No.
6A	50	150	45X341	2N521	DIN-2x50-150	UT-501	PRS150-40-40	EZ5515	Filter - Red
B	50	150				UT-501			" - Blue
7	.1	400	D68104	TP428	S-4-1	TC-1	484-.1	DT4P1	Line Filter
8	.2	200	B66204	TP429	S-4-2	TC-2	484-.2	DT4P2	Line Isolating
9	.01	200	B66103	TP421	S-4-01	TC-11	484-01	DT4S1	SOL6 Plate Bypass
10	.01	200	B66103	TP421	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
11	.01	200	B66103	TP421	S-4-01	TC-11	484-01	DT4S1	"
12	.05	200	B66503	TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
13	.001	400	D68102	TP404	S-6-001	TC-21	484-001	DT6D1	Ant. Coupling
14	220	500	47X468	MC240	M0-5-325	LFM-325	468-00025	SW5025	Auto. Plate Bypass
15A	50	50	47X112	MC225	M0-5-45	LFM-45	1468-00005	SW505	Diode Filter
B	50	50		MC225	M0-5-45	LFM-45	1438-00005	SW505	"
16	47	47	47X446	MC225	M0-5-45	LFM-45	1438-00005	SW505	Dec Grid Capacitor

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PURITAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	500KΩ	33X352	MK401	D13-133	M-60-Z	Volume Control
B	Start	Not Req.	Not Req.	E	KSS-3	Attach to 17A per Instructions
C	Switch		SW-A	41	SW-A	

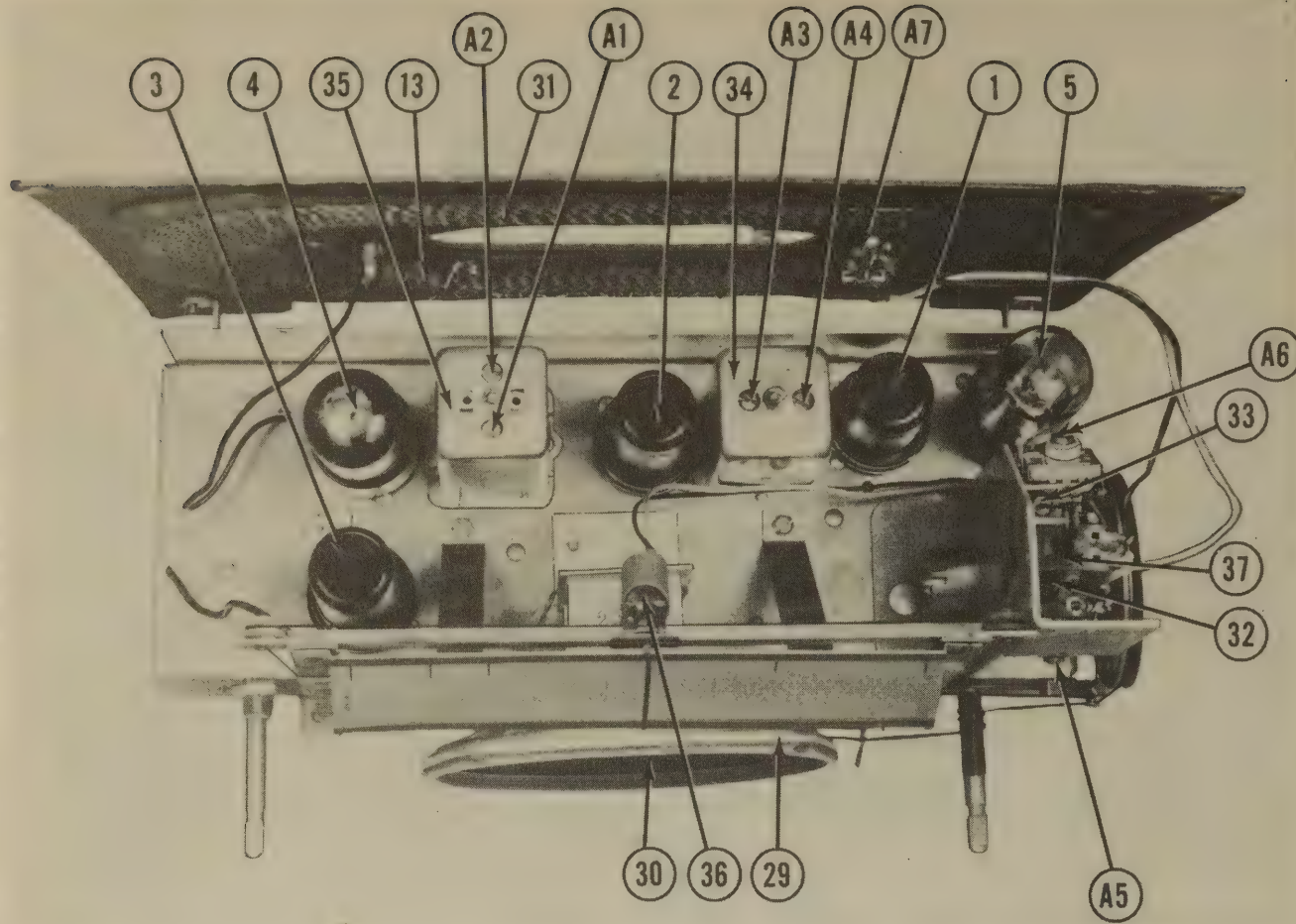
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		PURITAN PART No.	IRC PART No.	
18	39KΩ	B85225	BTS-39K	Or.-White-Or. Osc. Grid
19	2.2 Meg.	B85473	BTS-2.2 Meg	Red-Red-Grn. AVC Network
20	47KΩ	B85685	BTS-47KΩ	Yl.-Yl.-Or. Diode Load
21	6.8 Meg.	B84474	BTS-6.8 Meg	Blue-Gray-Grn. 1st AF Grid
22	470KΩ	B84474	BTS-470K	Yl.-Yl.-Yl. 1st AF Plate Load
23	470KΩ	B83151	BW-470K	Yl.-Yl.-Yl. Output Grid
24	150Ω	B85224	BW-150	Br.-Brn.-Br. Output Cathode
25	220KΩ	B84270	BW-220K	Red-Red-Yl. Line Isolating
26	27Ω		BW-27	Red-Yl.-Blk. Rectifier Ballast
27	1500Ω	C05152	BTA-1500	Br.-Grn.-Red Filter

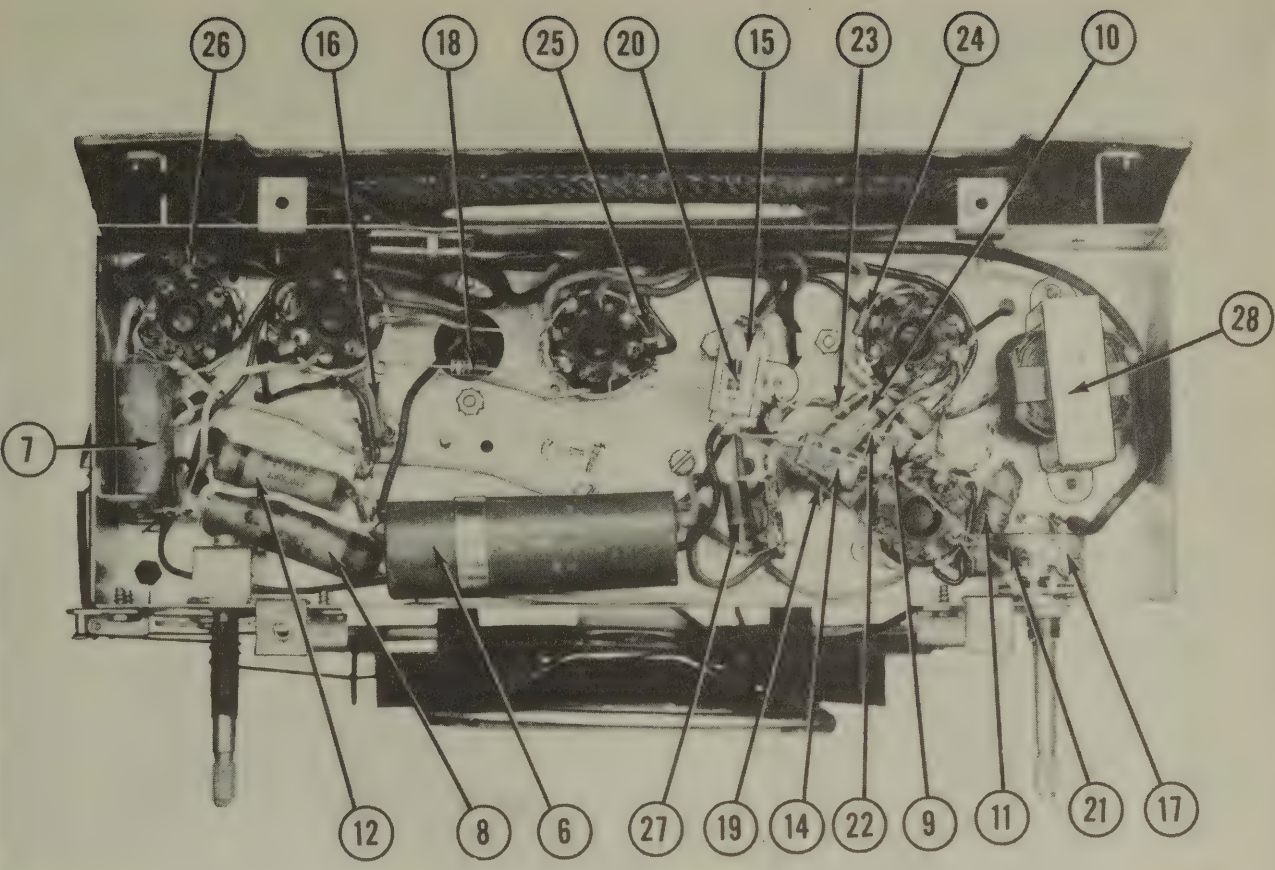
TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		PURITAN PART No.	STANCOR PART No.	THORDARN PART No.	
28	3000Ω 3.8Ω 200Ω	51X122	A-3875	T-13839	

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	PURITAN PART No.	JENSEN PART No.			
29	FIELD PH	VC IMP. 3.8Ω	12A432	ST-1071	†Fabricate new mounting bracket.
30	CONE DIA. 4-3/4"	VC DIA. 1/2"	NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT.		

R F COILS

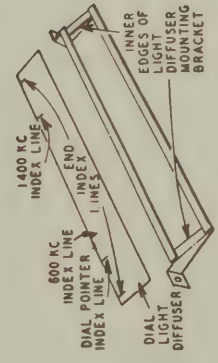
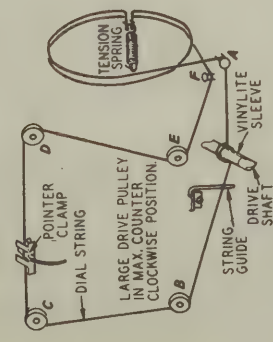
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	PURITAN PART No.	MEISSNER PART No.	
31A	Loop Ant.	1Ω	1Ω	9A1834		For walnut Cabinet " Ivory Items 32,33 ganged together and slug tuned
31B	"	1Ω	1Ω	9A1835		
32	Ant. Coil	10Ω	1.5Ω			
33	Osc. Coil	1Ω	6Ω	9A1808	16-6658	
34	Input IF	21.3Ω	21.8Ω	9A1809	16-6660	
35	Output IF	23Ω	19Ω			

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	PURITAN PART No.	
36	Bayonet	6-8	0.15	BTOWH		Type 47

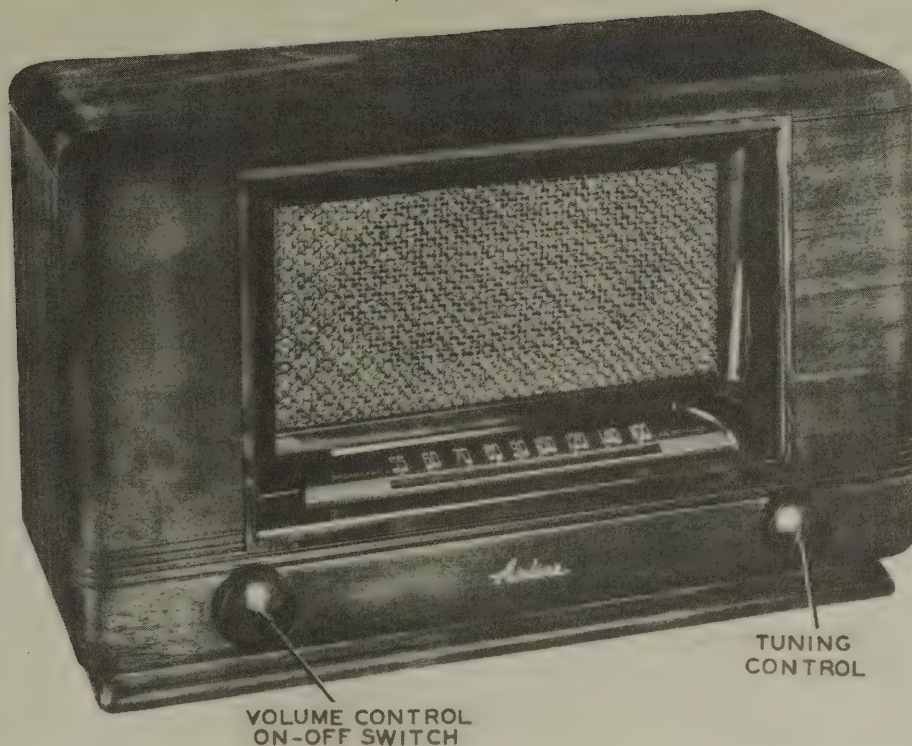
MISCELLANEOUS

ITEM No.	PART NAME	PURITAN PART No.	NOTES
37	Tuning Assy.	20K96	Complete with coils & trimmers, etc.
A5	Trimmer	17A239	Osc. Adjustment 40-370 pF
A6	Knob	17A238	" 4-70 pF
	"	10A300	Ivory
	"	10A297	Walnut
	"	55X255	Ivory
	"	55X267	Walnut
	"	58X638	For Ivory Cabinet
	"	58X640	For Walnut



DRIVE CORD REPLACEMENT

Turn the large drive pulley to the maximum counterclockwise position. Use a new 53 inch drive cord, tie one end to the tension spring and fasten the other end of the spring to the drive pulley. Install the cord as shown in the illustration. Wind two turns clockwise around the tuning shaft with the turns progressing away from the chassis. After string is installed, stretch the tension spring and tie free end of cord to spring. Cut off excess string.



AIRLINE MODEL 64WG-1804B

TRADE NAME Airline Models 64WG-1804A, 64WG-1804B
MANUFACTURER Montgomery Ward & Co., 610 Chicago Ave., Chicago, Ill.
TYPE SET AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (SIX) Types, 12SK7 RF Amp., 12SA7 Mixer, 12SF7 IF-Det.-AVC, 12SJ7 1st AF, 35L6GT Power Output, 35Z5GT Rectifier

POWER SUPPLY 105-125 Volts AC-DC
TUNING RANGE—BROADCAST 535-1620KC

RATING - .230 amps. @ 117V AC
SHORT WAVE

ALIGNMENT INSTRUCTIONS

Set dial pointer and diffuser strip as shown on dial calibration diagram. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #2 (grid) 12SF7. Low side to B-.	455KC	Tuning control maximum clockwise.	Across voice coil	A1, A2.	Adjust for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to B- and decrease dummy ant. to .001 MFD to prevent excessive hum modulation.
"	High side to pin #8 (grid) 12SA7. Low side to B-.	"	"	"	A3, A4.	"
"	"	1400KC	1400KC index line.	"	A5	"
50 MMFD	High side to ext. ant. clip. Low side to chassis.	"	"	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIRLINE PART No.	STANDARD REPLACEMENT		
1	RF Amp.	12SK7	12SK7	8N	
2	Mixer	12SA7	12SA7	8R	
3	If-Det.-AVC	12SF7	12SF7	7A2	
4	1st AF	12SJ7	12SJ7	8N	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		AIRLINE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	50	45X344	2N521	DH-2x50-150	Ta-550	Filter - Red
7B	150					
7C	50					
8	20					
9	25					
10	1	D63104	TP428	M-25-25	TC-25	Filter - Green
11	.01	D63104	TP428	M-25-25	TC-25	Cath. Bypass-yellow
12	.01	D63104	TP428	M-25-25	TC-25	Line Isolating
13	.01	D63104	TP428	M-25-25	TC-25	35L6 Plate Bypass
14	.01	D63104	TP428	M-25-25	TC-25	Audio Plate Decoupl.
15	.01	D63104	TP428	M-25-25	TC-25	Audio Coupling
16	.01	D63104	TP428	M-25-25	TC-25	Audio Screen bypass
17	.01	D63104	TP428	M-25-25	TC-25	Audio Coupling
18	.01	D63104	TP428	M-25-25	TC-25	Audio Coupling
19	.01	D63104	TP428	M-25-25	TC-25	Audio Coupling
20	.01	D63104	TP428	M-25-25	TC-25	Audio Coupling
21	.01	D63104	TP428	M-25-25	TC-25	Audio Coupling
22	.01	D63104	TP428	M-25-25	TC-25	Audio Coupling
23	.01	D63104	TP428	M-25-25	TC-25	Audio Coupling

*used in series B models

CONTROLS

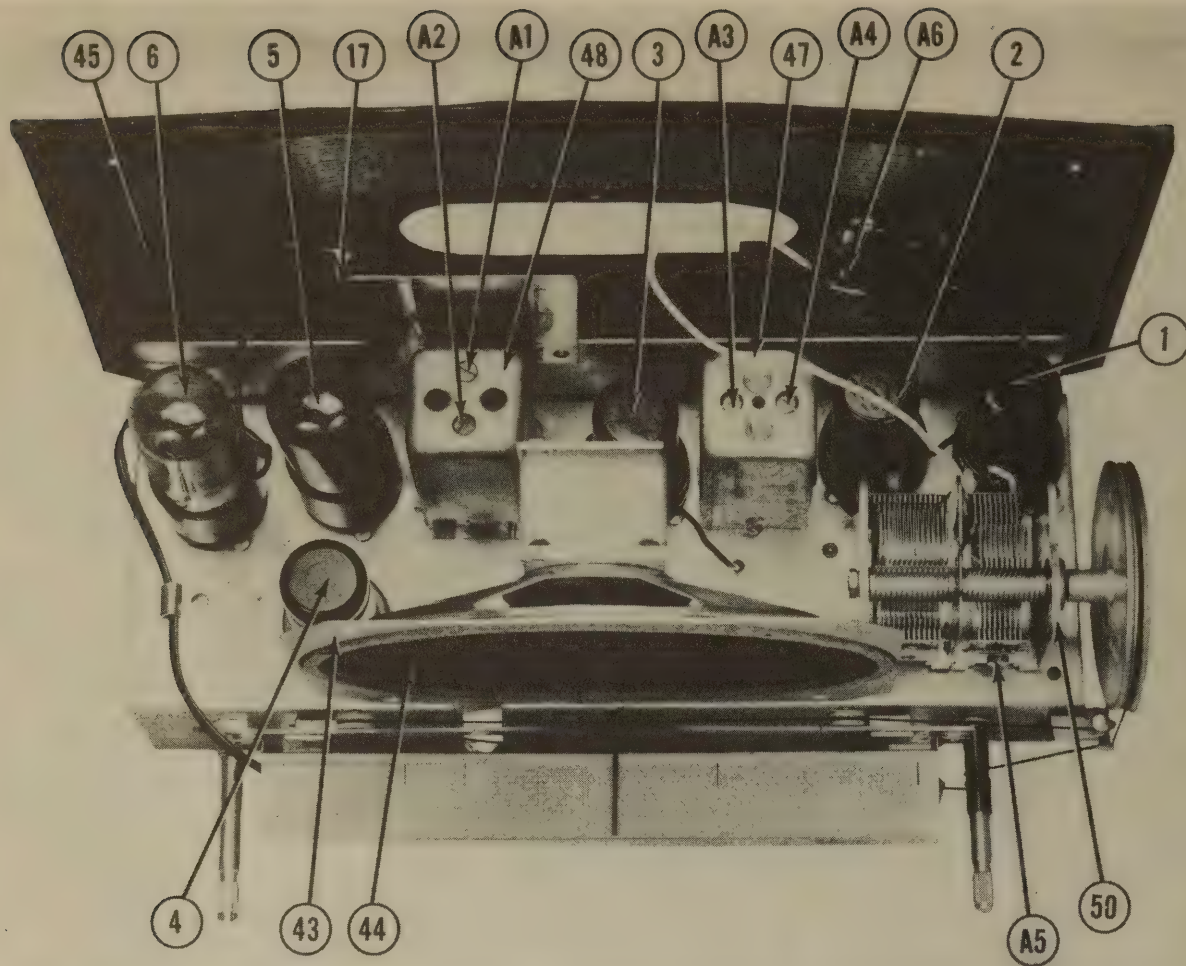
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIRLINE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
24A	500KΩ	36X347	TM230	D13-133X	AT-92*	Volume Control
24B	500KΩ	36X347	SS25	E	XSS-3	Attach to 24A per instructions
24C	500KΩ	36X347	M25	41	SN-A	"

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		AIRLINE PART No.	IRC PART No.	
25	3300Ω	B84332	BTS-3300	Or.-Or.-Red RF Plate Load
26	100KΩ	B85104	BTS-100K	Br.-Blk.-Yl. Converter Grid
27	33KΩ	B84393	BTS-33K	Or.-White-Or. Osc. Grid
28	2.2 Meg.	B85225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
29	47KΩ	B85473	BTS-47K	Yl.-Yl.-Or. IF Filter
30	15KΩ	B84153	BTS-15K	Br.-Grn.-Or. Tone Compensation
31	4.7 Meg.	B85475	BTS-4.7 Meg.	Yl.-Yl.-Grn. 1st AF Grid
32	470KΩ	B84474	BTS-470K	Yl.-Yl.-Yl. 1st AF Screen Dropping
33	33KΩ	B84333	BTS-33K	Or.-Or.-Or. 1st AF Plate Load
34	82KΩ	B84823	BTS-82K	Gray-Red-Or. 1st AF Plate Filter
35	470KΩ	B82181	BTS-470K	Yl.-Yl.-Yl. Output Grid
36	100Ω	B85471	BW-2-180	Br.-Gray-br. Output Cathode
37	470Ω	B85471	BW-2-180	Yl.-Yl.-Br. Filter - See Note 1
38	1500Ω	B84152	BTA-1500	Br.-Grn.-Red Filter
39	27KΩ	B84270	BW-2-27	Red-Vi.-Blk. Rectifier Ballast
40	270KΩ	B85274	BTS-270K	Red-Vi.-Yl. Line Isolating
41	35Ω	B84390	BW-2-39	Or.-white-blk. Line dropping

Note 1 - Used in series B models.

CHASSIS-TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	DC RES.	SEC.	AIRLINE PART No.	THORDARN PART No.	
42	3000Ω	4Ω	350Ω	.85Ω	51X116	4-38781	Drill new mounting holes. Mount vertically instead of horizontally beneath chassis.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD PM	VC IMP.	TELE LINE PART No.	HENSEN PART No.	
43	4Ω	4Ω	12A431		
44	4x6"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIRLINE PART No.	WEISSNER PART No.	
45	Loop Ant.	.2Ω	1Ω	9A1804		
46	Sec. Coil	.5Ω	6Ω	9A1805	14-1040	
47	Input IF	22Ω	22Ω	9A1775	13-8656	
48	Output IF	21.8Ω	18.3Ω	9A1776	16-3660	

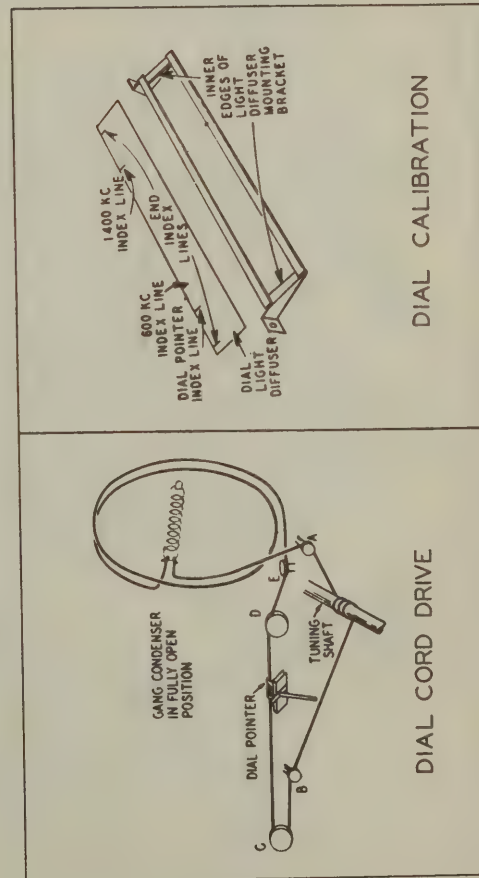
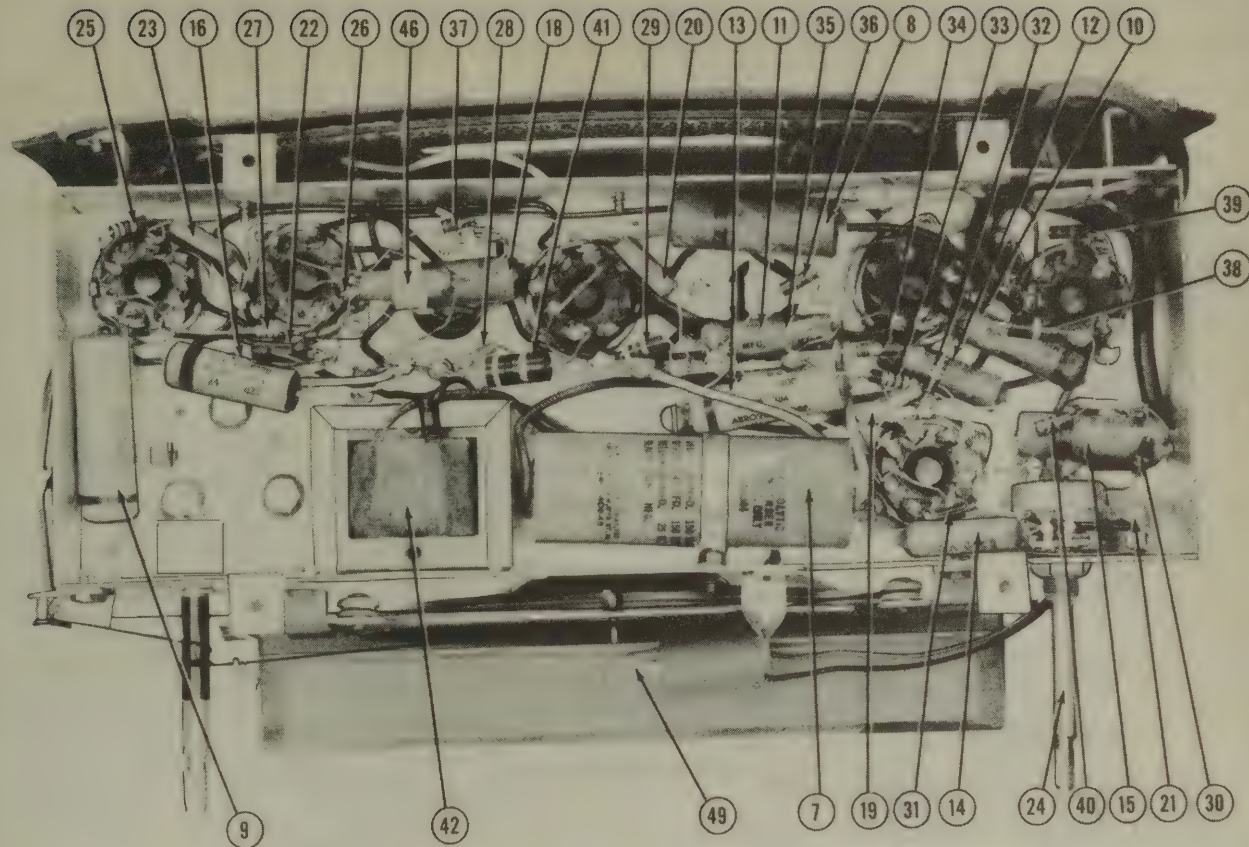
DIAL LIGHT

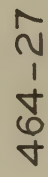
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIRLINE PART No.		
49	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
50	Tuning Cap. Trimmer Knob	14-179	2 Gang Variable Cap. Antenna Adjustment Walnut-Volume & Tuning
46		17A116	
		10A297	

CHASSIS—BOTTOM VIEW



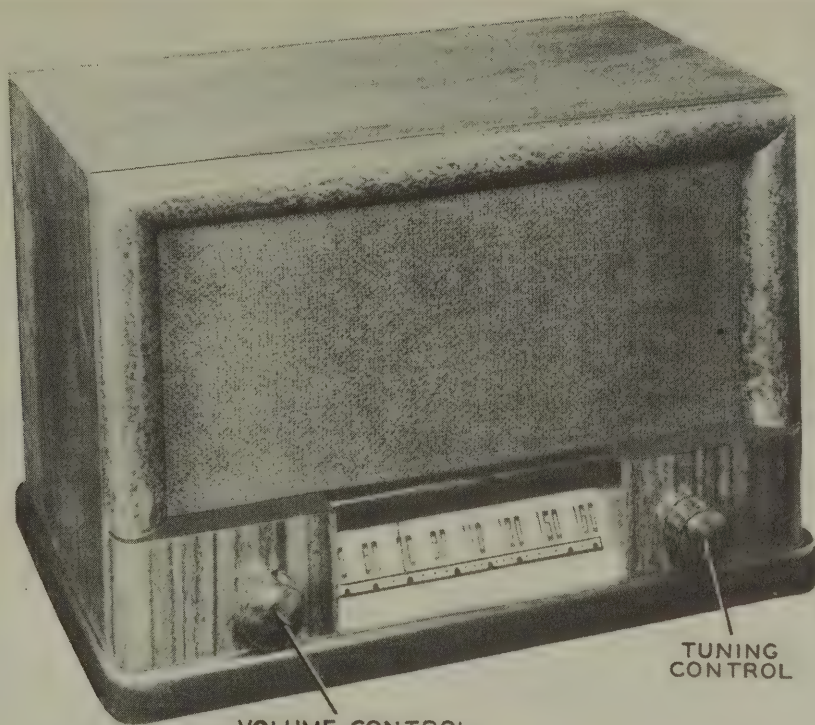


Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	-05WDC	29VAC	73VDC	-4VDC	0V	73WDC	4.2VAC	4.7VDC
2	2SA7	-05WDC	53VAC	73VDC	73VDC	-4VDC	0V	4.2VAC	-14VDC
3	12SJ7	-05WDC	-4VDC	0V	73VDC	-3VDC	73VDC	11.6VAC	23.5VAC
4	2SA7	-05WDC	-4VDC	0V	73VDC	-4.5WDC	0V	11.6VAC	29VDC
5	12SJ7	-05WDC	0V	0V	-4.5WDC	0V	19.7VDC	0V	29VDC
6	35L6GT	0V	85VAC	107VDC	73VDC	0V	53VAC	4.8VDC	17VDC
7	35L6GT	0V	117VAC	112VAC	0V	11VAC	0V	53VAC	117VDC

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	125K7	320K Ω	65 Ω	0	2.7M Ω	0 Ω	30.5K Ω	78 Ω	31.5K Ω
2	125K7	320K Ω	89 Ω	30.5K Ω	30.5K Ω	37K Ω	.5 Ω	78 Ω	2.8M Ω
3	125F7	320K Ω	2.7M Ω	0	30.5K Ω	480K Ω	30.5K Ω	12 Ω	24 Ω
4	125J7	320K Ω	0 Ω	0	4.5M Ω	0	500K Ω	12 Ω	145K Ω
5	351G6T	1N F	123 Ω	29K Ω	30.5K Ω	510K Ω	1N F	89 Ω	175 Ω
6	352G6T	1N F	152 Ω	149 Ω	1N F	177 Ω	1N F	1N F	29K Ω

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

E-L (ELECTRONIC LABS.)
MODEL 2701



VOLUME CONTROL
ON-OFF SWITCH

TUNING CONTROL

E/L (ELECTRONIC LABS.) MODEL 2701

E-L (ELECTRONIC LABS.)
MODEL 2701

TRADE NAME E/L (Electronic Labs.) Model 2701
MANUFACTURER Electronic Laboratories, Inc., 122 West New York St., Indianapolis, Ind.
TYPE SET AC - DC Superheterodyne - Self Contained Loop Antenna
TUBES(SIX) Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.

POWER SUPPLY 105-120 Volts AC-DC **RATING** - .265 Amps. @ 117V AC
TUNING RANGE-BROADCAST 540-1620KC **SHORT WAVE**

ALIGNMENT INSTRUCTIONS

Before aligning rotate tuning shaft until carriage is at top stop position. Space oscillator coil slug 1-5/32" out from top of coil form and RF slug 1-29/64" out from top end of RF coil winding. Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. If regeneration prevails with receiver loop in position it will be with set in cabinet, A5 is incorrectly set and should be re-adjusted.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to pin #4 (grid) 12SK7 RF tube. Low side to chassis.	455KC	High freq. end of dial (slugs out of coils to top stop position).	Across voice coil	A1, A2, A3, A4.	Adjust A5 to open position. Adjust A1, A2, A3 and A4 for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to chassis and decrease dummy ant. to prevent excessive hum modulation.
"	"	"	"	"	A5	Adjust for minimum output. Use isolation instructions as given for IF alignment.
400Ω res.	External antenna and ground leads.	1620KC	"	"	A6	Adjust for maximum output.
"	"	1400KC	Tune in 1400 KC signal. (pointer approx. 1" from stop end at right)	"	A7	" " " "
"	"	700KC	Tune in 700KC signal. (Pointer approx. 1" from stop at left end.)	"	A8	Adjust tuning core for max. output. (do not disturb carriage position). If more than one turn required repeat adjustments A7 at 1400KC and A8 at 700KC until correct alignment is reached.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		ELECT. LAES. PART No.	STANDARD REPLACEMENT		
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L68GT	35L68GT	7AC	
6	Rectifier	35Z50T	35Z50T	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		ELECT. LAES. PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	CAP.	C-466A	2N511	M-2x40-150	TA-440	Filter - Red
7B	40					
8	150					
9	400					
10	1					
11	200					
12	.02					
13	.01					
14	.005					
15	.001					
16	.0005					
17	.0001					
18	.00005					
19	.00001					

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		ELECT. LAES. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
20A	500KΩ	W-444A	MR48	D13-133	M-60-2	Volume Control
20B	20A					Attach to 20A per instructions
20C	Switch	Not Req.	Not Req.	41	SW-A	

RESISTORS

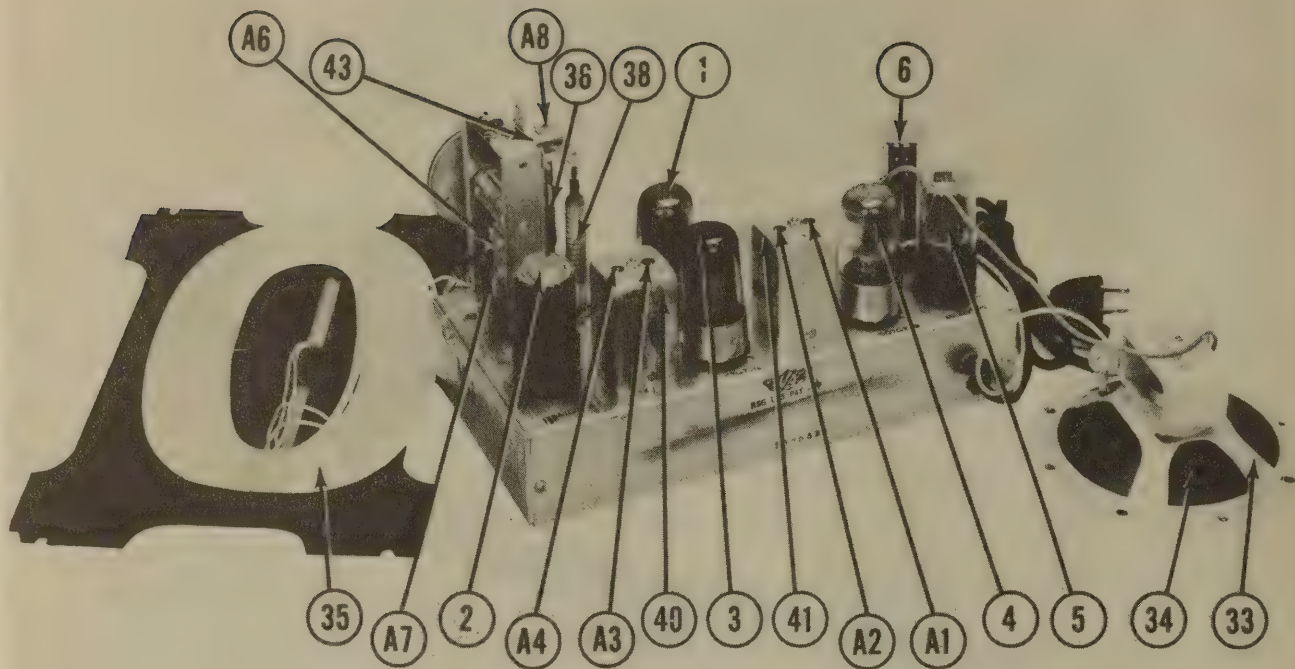
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		ELECT. LAES. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
21	4700Ω	W-452A		BTS-4700		Y1.-V1.-Red RF Plate Load
22	100KΩ	W-439A		BTS-100K		Br.-Blk.-Y1. Converter Grid-See Note 1
23	22KΩ	W-437A		BTS-22K		Red-Red-Or. Osc. Grid
24	47KΩ	W-438A		BTS-47K		Y1.-V1.-Or. Diode Load
25	2.2 Meg.	W-442A		BTS-2.2 Meg.		Red-Red-Grn. AVC Network
26	10 Meg.	W-440A		BTS-10 Meg.		Br.-Blk.-Blue 1st AF Grid
27	220KΩ	W-441A		BTS-220K		Red-Red-Y1. 1st AF Plate Load
28	470KΩ	W-415A		BW-470K		Y1.-V1.-Y1. Output Grid
29	150Ω	W-416A		BW-150		Br.-Grn.-br. Output Cathode
30	1000Ω	W-433A		BTA-1000		Br.-Blk.-Red Filter
31	50Ω	W-434A		AB-50		Line Dropping

Note 1 - Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		IMPEDANCE PRI. SEC.	DC RES. PRI. SEC.	ELECT. LAES. PART No.	STANCOR THORDAR'N PART No.	
32	1900W	3.5Ω	192Ω	T-1369A	A-3876T	T-14582T

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		ELECT. LABS. PART No.	JENSEN PART No.	
33	FIELD VC IMP. 3.5Ω	H-244A	ST-107	
34	CONE DIA. VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		ELECT. LABS. PART No.	WEISSNER PART No.	
35	Loop Ant.	.1Ω	A2154B	
36	Ant. Coil	7.5Ω	A-2143E	
37	Wave Trap	44Ω	T-1372A	
38	Osc. Coil	.5Ω	A-2143E	
39	RF Choke	23.5Ω	T-1365A	
40	Input IF	15.2Ω	T-1361A	
41	Output IF	15.2Ω	T-1362A	

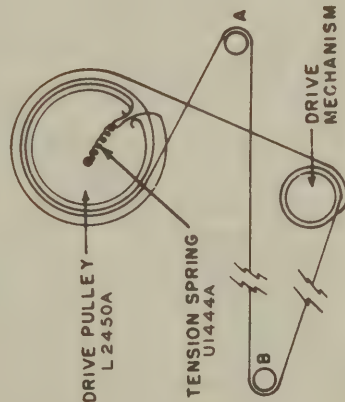
Items 35, 38 ganged and slug tuned.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	ELECT. LABS. PART No.	
42	Bayonet	6-8	0.15	Brown		Type 47

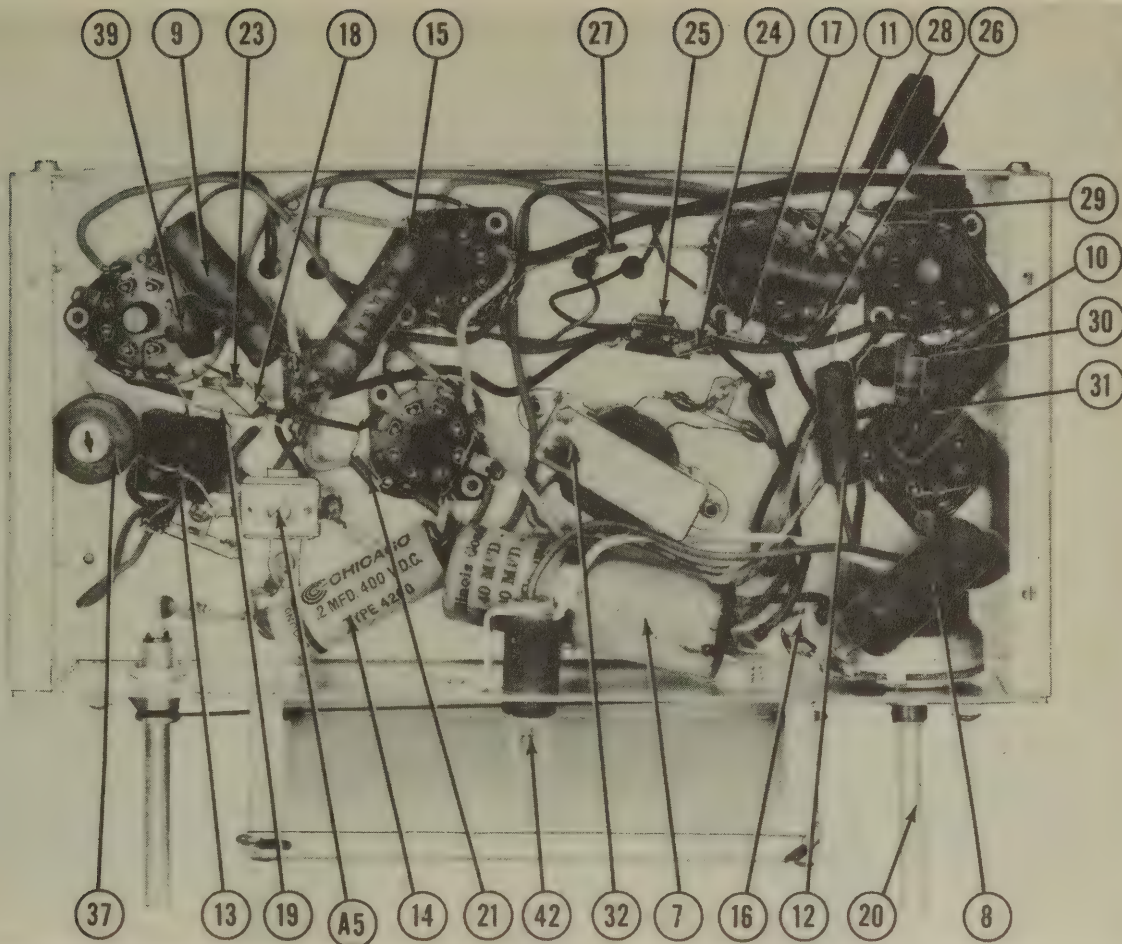
MISCELLANEOUS

ITEM No.	PART NAME	ELECT. LABS. PART No.	NOTES
43	Tun. Assy. Glass Dial Pointer	A-2143E H-247B U-1461A	



Turn the tuner to the fully open position. Use a new cord 50" long and tie one end to the tension spring. Fasten the other end of the tension spring to the drive pulley. Pass cord through slot in pulley ring; add spring tension and continue one and one-half turns counterclockwise over top of pulley. Then pass cord around idler pulley A, starting over top and going around clockwise. Pass cord over idler pulley B, starting over top and going around counterclockwise. Wind one full turn counterclockwise around drive mechanism. Then wind one full turn counterclockwise around drive pulley, pass through slot in pulley and tie string to tension spring. Cut off excess string. Attach dial pointer to cord.

CHASSIS—BOTTOM VIEW



MANTOLA
MODEL R643W



VOLUME CONTROL
ON-OFF SWITCH

TUNING
CONTROL

MANTOLA MODEL R643W

MANTOLA
MODEL R643W

TRADE NAME Mantola Model R643-W
SUPPLIER The B. F. Goodrich Co., 500 South Main St., Akron, Ohio
TYPE SET Battery Operated Superheterodyne Receiver
TUBES (FOUR) Types 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output.
POWER SUPPLY 90 Volt "B" Battery - 1.5 Volt "A" Battery in Pack Form - Ensign AB48 or equivalent.
RATING 12.7 MA @ 90V DC plus .250 Amps. @ 1.5V DC
TUNING RANGE—BROADCAST 535-1630KC

ALIGNMENT INSTRUCTIONS

With chassis in cabinet check setting of dial pointer at extreme high and low freq. end of dial. Volume control at maximum volume and output of signal generator no higher than is necessary to obtain reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to top cap (grid) 1A7. Low side to chassis.	455KC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
.0002 MFD	High side to ant lead. Low side to chassis.	1630KC	"	"	A5,A6.	" " " "
"	"	1400KC	Tune in 1400 KC signal.	"	Iron Core	Adjust osc. core then ant. core for maximum output.

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PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

TUBES

ITEM No.	USE	REPLACEMENT DATA		BMA BASE TYPE	INSTALLATION NOTES
		MANTOLA PART No.	STANDARD REPLACEMENT		
1	Converter	1A7GT	1A7GT	7 1/2	
2	If Amp.	1N5GT	1N5GT	5Y	
3	Det.-AVC-AP	1H5GT	1H5GT	5Z	
4	Power Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MANTOLA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.
5	4	67A4-2	TC40	M-4-150	UT-41	FRS150-4
6	.005	64B1-12	TP408	S-6-005	TC-25	684-005
7	.01	64B1-25	TP421	S-4-01	TC-11	484-01
8	.01	64B1-25	TP421	S-4-01	TC-11	484-01
9	.05	64B1-32	TP426	S-4-06	TC-15	484-06
10	.01	64B1-25	TP421	S-4-01	TC-11	484-01
11	.002	600	TP405	S-6-002	TC-22	684-002
12	.01	64B1-14	TP421	S-4-01	TC-11	484-01
13	.01	64B1-25	TP421	S-4-01	TC-11	484-01
14	250	500	5857-22	MO-5-325	1FM-325	1468-00025
15	250	500	5857-22	MO-5-325	1FM-325	1468-00025
16	100	500	5857-17	MO-5-31	1FM-31	1439-0001
17	800	500	5857-31	MO-3-38	MS-38	1479-0008
18	800	500	5857-31	MO-3-38	MS-38	1479-0008
19	200	500	4C237	MO-5-32	1FM-32	1468-0002
20	120	500	4C235	MO-5-31	1FM-31	1468-0001

*Not used in all models.

CONTROLS

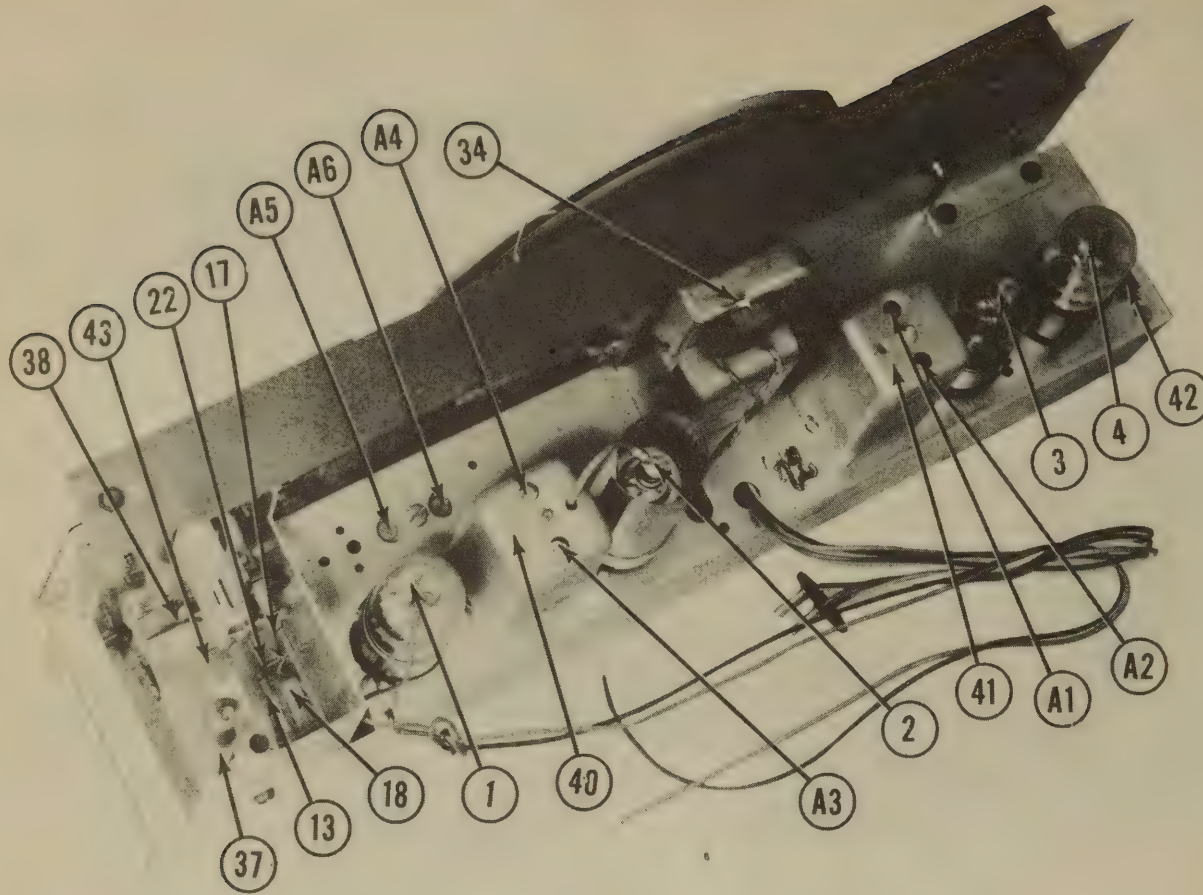
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MANTOLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
21A	1 Meg. Switch	75B1-1	MK402	D13-137	AM-53-2	Volume Control
21B	1 Meg. Switch	Not Req.	Not Req.	E	KSS-3	Attach to 21A per instructions
21C	1 Meg. Switch	Not Req.	M27	42	SN-42	

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		MANTOLA PART No.	MALLORY PART No.	IRC PART No.	SPRAGUE PART No.	
22	15KΩ	60B8-153	BTS-15K	BTS-15K	BTS-15K	Br.-Grn.-Or. Ant. Loading
23	470KΩ	60B2-474	BTS-470K	BTS-470K	BTS-470K	Yl.-Vl.-Yl. AVC Network
24	220KΩ	60B8-224	BTS-220K	BTS-220K	BTS-220K	Red-Red-Yl. Osc. Grid
25	33KΩ	60B8-333	BTS-33K	BTS-33K	BTS-33K	Or.-Or.-Or. Mixer Screen Dropping
26	4.7 Meg.	60B2-475	BTS-4.7 Meg.	BTS-4.7 Meg.	BTS-4.7 Meg.	Yl.-Vl.-Grn. If Grid
27	220Ω	60B2-220	BTS-220	BTS-220	BTS-220	Red-Red-Red If Plate Filter
28	2.2 Meg.	60B2-225	BTS-2.2 Meg.	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
29	4.7 Meg.	60B2-475	BTS-4.7 Meg.	BTS-4.7 Meg.	BTS-4.7 Meg.	Yl.-Vl.-Grn. 1st AF Grid
30	1 Meg.	60B2-105	BTS-1 Meg.	BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
31	1 Meg.	60B2-105	BTS-1 Meg.	BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
32	590Ω	60B2-391	B4-1-390	B4-1-390	B4-1-390	Or.-White-Br. Fixed Bias
33	.75Ω	61A2-1	EM-2-68	EM-2-68	EM-2-68	Blue-Gray-Silver Series Filament

TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MANTOLA PART No.	MALLORY PART No.	STANCOR PART No.	THORDARN PART No.	
34	6000Ω 2.2Ω 700Ω	Part of 78B5	Part of 78B5	A-35781	T-145841	Bend mounting tabs down file out slots and mount on original bracket.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

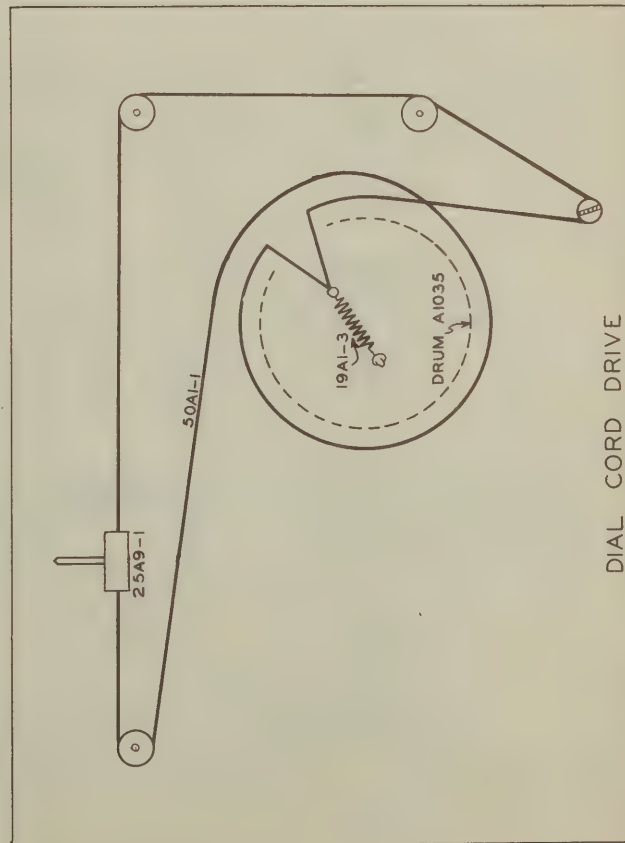
ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		MANTOLA PART No.	JENSEN PART No.	
35	FIELD VC IMP. PM 2.25	78B5	ST-109	
36	CONE DIA. VC DIA. 5-7/8" 9/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

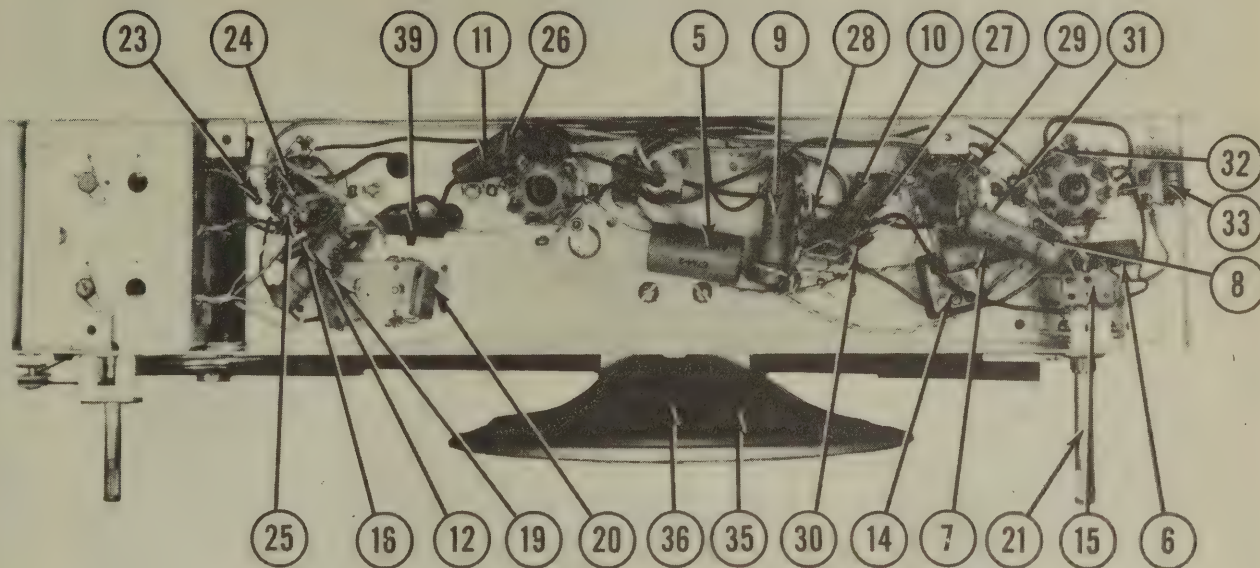
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	MANTOLA PART No.	MEISSNER PART No.	
37	Ant. Coil		3.5Ω	AC105-1		
38	Osc. " "		8Ω	AB104-4		
39	RF Choke	16Ω		AB103-1		
40	Input IF	14.5Ω	18Ω	72B5	16-3358	
41	Output "	13.5Ω	13.5Ω	72B6	18-6330	

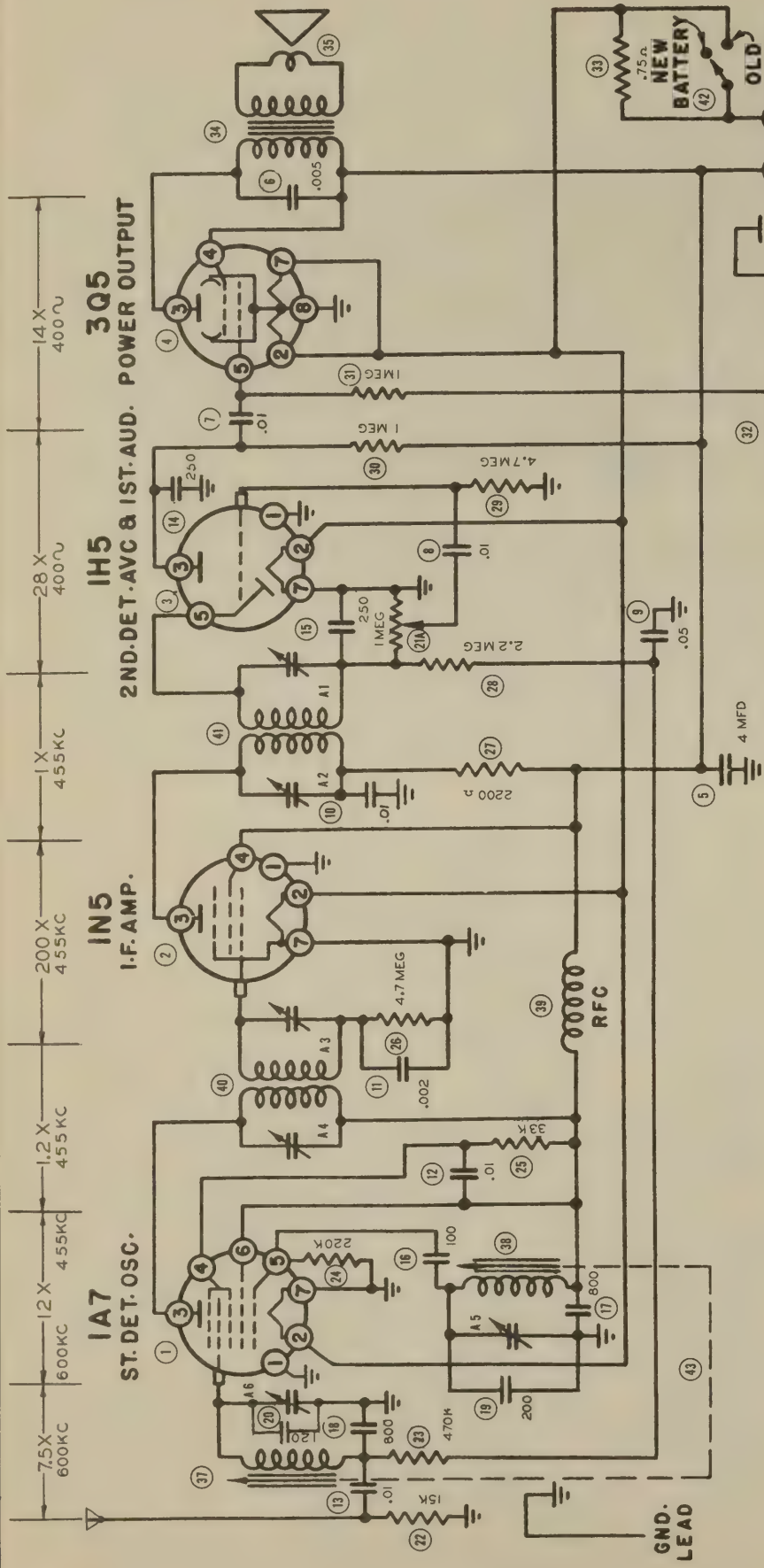
MISCELLANEOUS

ITEM No.	PART NAME	MANTOLA PART No.	NOTES
42	Switch	77A1-6	SPST Economizer
43	Tuner Assy.	A1028	Permeability Tuning Assy.
A5	Trimmer	6689-1	{ Osc. Adjustment
A6	Cabinet	35C25	{ Ant. Adjustment
	Battery Cable	A1026	Complete with plug
	Knob	33A7-2	
	Dial Scale	21B13	Glass



CHASSIS—BOTTOM VIEW





I.F. = 455 KC.
RANGE = 535 TO 1630 KC

NOTE: VOLT & RES READINGS TAKEN WITH BATTERY SAVER SWITCH IN "OLD" POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	OV.	1.57VDC	87VDC	55VDC	1.5VDC	87VDC	OV.	OV.	OV.
2	1N5GT	OV.	1.57VDC	83VDC	87VDC	OV.	87VDC	OV.	OV.	OV.
3	1H5GT	OV.	1.57VDC	55VDC	83VDC	2VDC	OV.	OV.	OV.	OV.
4	3Q5GT	OV.	1.57VDC	82VDC	87VDC	OV.	OV.	OV.	OV.	OV.

RESISTANCE READINGS

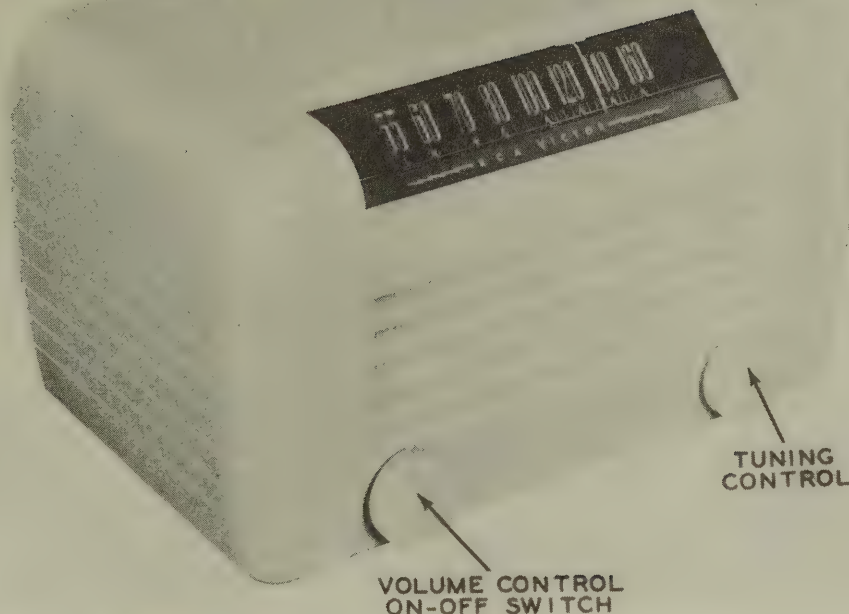
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0Ω	*	165 KΩ	198 KΩ	230 KΩ	165 KΩ	*	3.7 MEG	4.2 MEG
2	1N5GT	0Ω	*	167 KΩ	165 KΩ	1 N F	165 KΩ	*	5.1 MEG	5.1 MEG
3	1H5GT	0Ω	*	1.2 MEG	165 KΩ	1.05 MEG	5.1 MEG	*	1 N F	5.1 MEG
4	3Q5GT	0Ω	*	165 KΩ	165 KΩ	1.2 MEG	410 Ω	*	0Ω	0Ω

* DO NOT USE OHMMETER TO CHECK FILAMENT RES.

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 1.5 volt battery bias substituted for measurement.

- 1 - DC Voltage measurements are at 20,000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- 5 - Volume control at maximum, no signal applied for voltage measurements.

RCA VICTOR
MODELS 65X1, 65X2



RCA VICTOR
MODELS 65X1, 65X2

RCA VICTOR MODEL 65X2

TRADE NAME RCA Victor Models 65X1, 65X2 (Chassis No. RC-1034) MANUFACTURER Radio Corp. of America, RCA Victor Div. - Camden, N. J. TYPE SET AC - DC Superheterodyne - Self Contained Loop Antenna TUBES(FIVE) Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.						
POWER SUPPLY 105-125 Volts AC-DC RATING - .270 Amps. @ 117V AC TUNING RANGE-BROADCAST 540-1600KC						
ALIGNMENT INSTRUCTIONS Set dial pointer at left-hand end calibration mark with rotor in full mesh. Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #4 (grid) 12SK7. Low side to chassis.	455KC	Quiet point at high freq. end of dial.	Across voice coil	A1,A2.	Adjust for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to chassis and decrease dummy ant. to prevent excessive hum modulation.
"	High side to pin #8 (grid) 12SA7. Low side to chassis.	"	"	"	A3,A4.	"
200 MMFD	High side to ant. lead. Low side to chassis.	1300KC	1300KC	"	A5,A6.	Adjust for maximum output. Use isolation transformer or isolating capacitor.
"	"	600KC	600KC (rock rotor)	"	A7.	"

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CHASSIS—TOP VIEW

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		RCA PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		RCA	REPLACEMENT DATA					CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT		MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.			
6A	50	150	70408	2N520	M-5040-150	TA-530	FRS150-40-40	BRD3515	Filter - Red 95676-1	
B	30	150								
7	.05	400	70615	TP426	S-4-05	TC-15	484-05	DT455	Line Filter	
8	.02	400	70811	TP423	S-4-02	TC-12	484-02	DT455	50L6 Plate Bypass	
9	.005	400	70806	TP408	S-6-005	TC-25	484-05	DT605	Audio Coupling	
10	.02	400	70811	TP423	S-4-02	TC-12	484-02	DT452	"	
11	.05	400	70615	TP428	S-4-05	TC-15	484-05	DT455	AVC Filter	
12	.1	400	70617	TP428	S-4-01	TC-1	484-.1	DT451	Line Isolating	
13	.01	200	70610	TP421	S-4-01	TC-11	1484-01	DT451	Ant. Coupling	
14	.330	500	39640	HC241	MO.5-33	1FM-33	1486-0003	SW4573	Ant. Plate Bypass	

CONTROLS

ITEM No.	RATING RESIST- ANCE	WATTS	REPLACEMENT DATA			CLAROSAT PART No.	INSTALLATION NOTES
			RCA PART No.	MALLOY PART No.	IRC PART No.		
164	500Ω	1	70322	4R48	D13-133	M-30-Z	Volume Control - See Note 1 attach to ISA per instruction
B	Smart		Not Req.	Not Req.	A	Not Req.	
C	Switch		" "	M26T	47	SW-46	

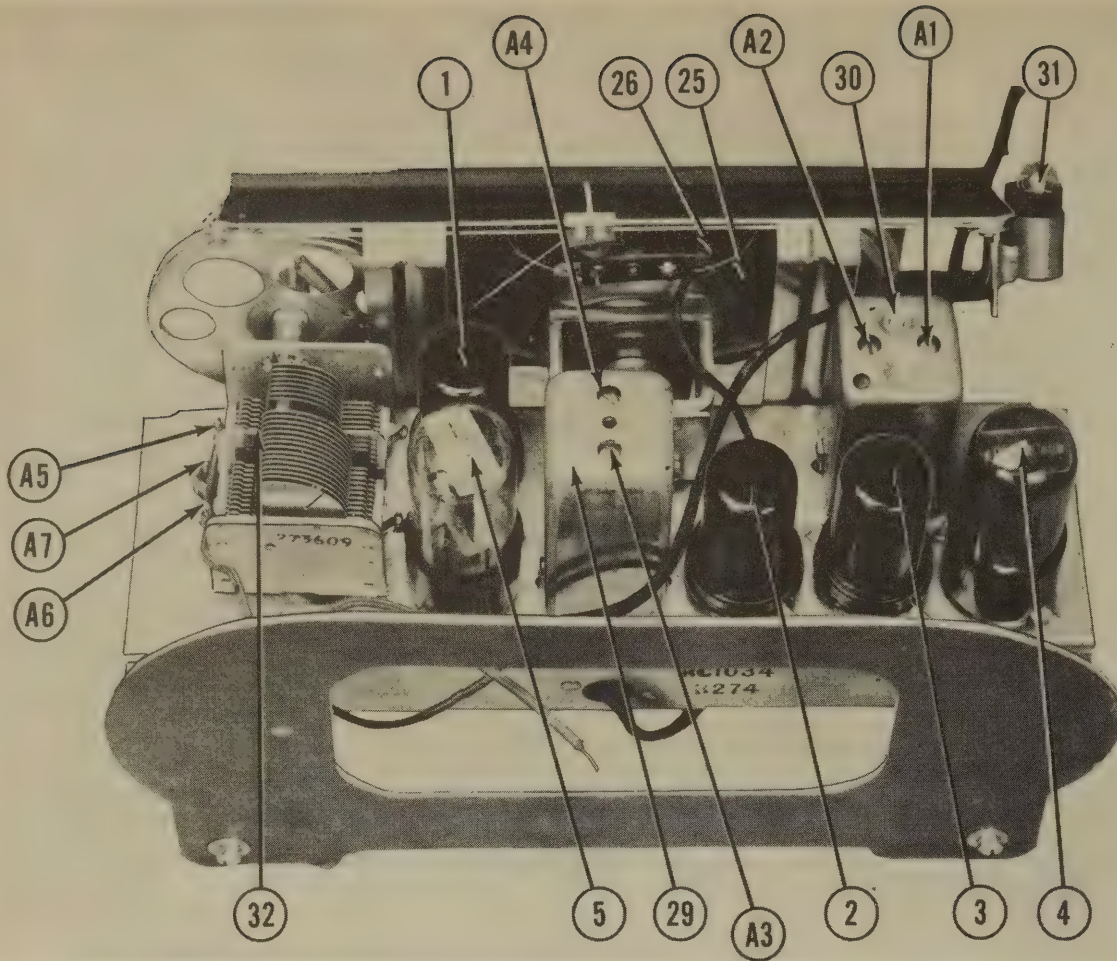
Note 1 - Install a 50K Ω resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft side, terminals down.)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	
16	220K	1	30492	BTS-22K	Red-Red-Ur. Osc. Grid
17	220K	1	14563	BTS-220K	Red-Red-Ur. Line Isolating
18	3.3 Meg.	1	31417	BFS-3.5 Meg.	Or.-Or.-Grn. AVC Network
19	4.7 Meg.	1	30351	BFS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
20	220K	1	14563	BFS-220K	Red-Red-Yl. 1st AF Plate Load
21	470K	1	30848	BFS-470K	Yl.-Vi.-Yl. Output Grid
22	120K	1	30189	EW-#-120	Br.-Red-Br. " Cathode
23	120K	1	6134	BTA-1200	Br.-Red-Red. Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.		RCA PART No.	STANCOR PART No.	THORDARN PART No.	
	PRI.	SEC.	PRI.	SEC.				
24	180Ω	2.85Ω	220Ω	.67Ω	92222B-1W	A-33761		Add filter if necessary to reduce hum level.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		RCA PART No.	JENSEN PART No.	
25	FIELD PM VC IMP. 3-5Ω	922258-1W		
26	CONE DIA. VC DIA. 4"x6" 1/2"			NOT READILY REPLACEABLE—USE COMPLETE SPEAKER UNIT

R F COILS

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		RCA PART No.	MEISSNER PART No.	
27	Loop Ant.	70463		
28	Sec. Coil	70477		
29	Input IF	70466		
30	Output IF	70465	16-6558 16-6670*	

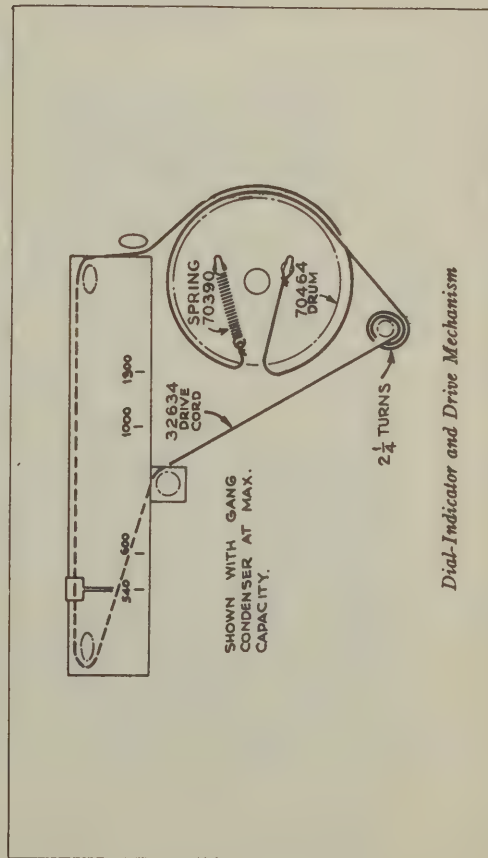
*Remove 47KΩ resistor in IF can and add to low side of secondary.

DIAL LIGHT

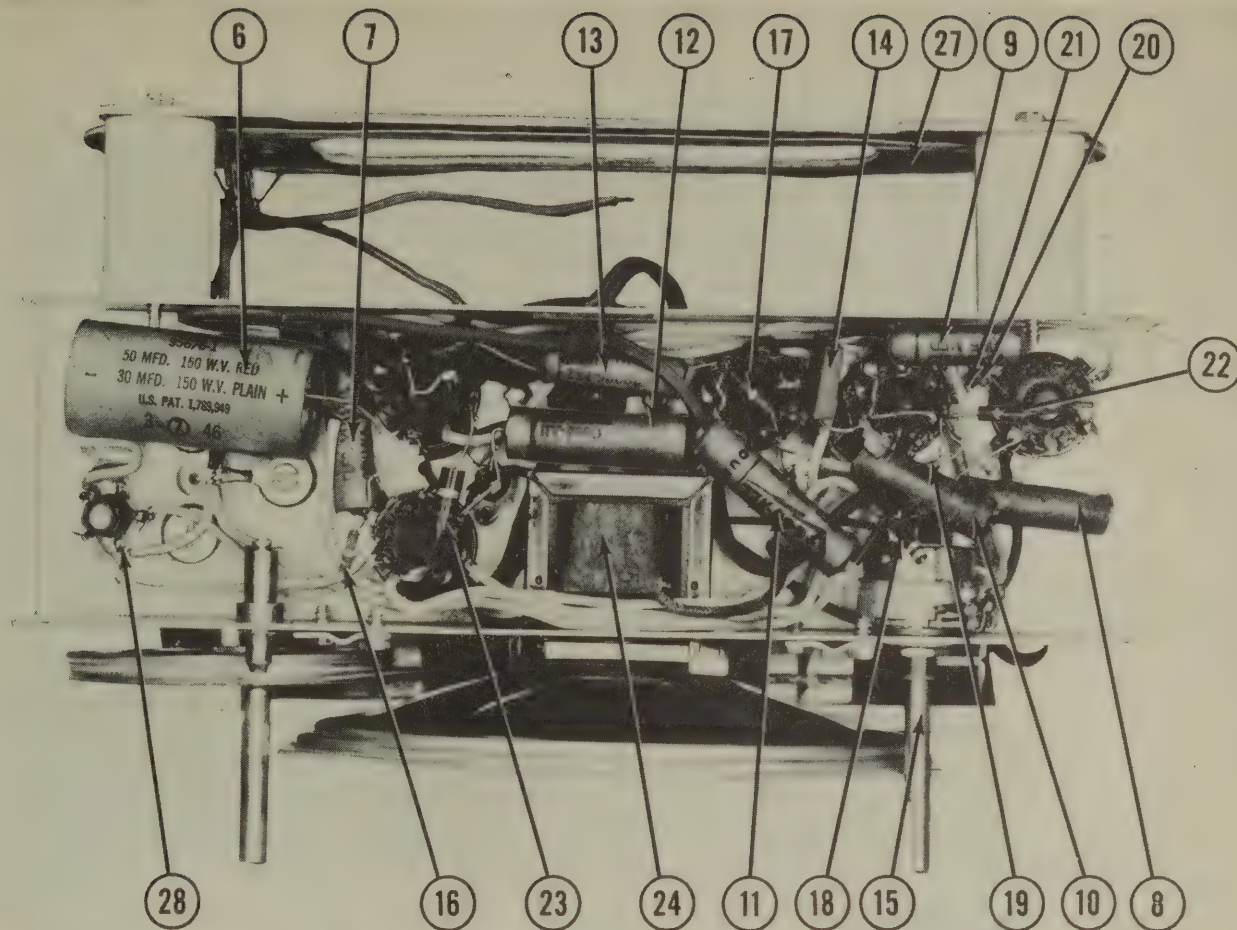
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	RCA PART No.	
31	Bayonet	6-8	0.2	White	11765	Type 51

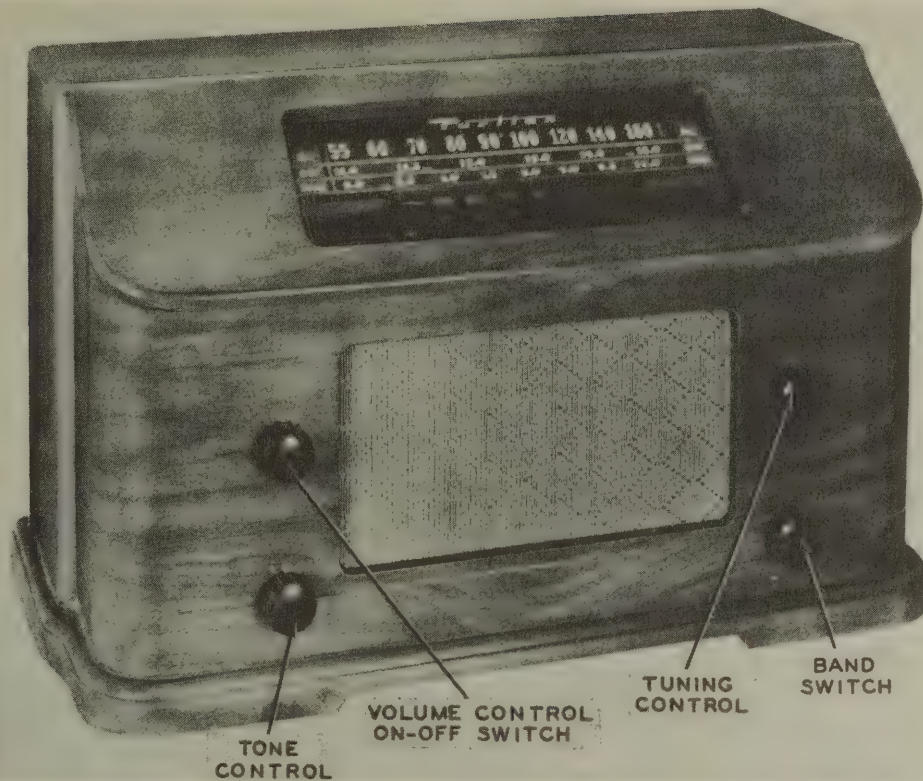
MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
32	Tuning Cap.	70463	2 Gang Variable Complete
	Indicator	70469	Station Selector
	Dial Scale	70476	Glass
	Knob	70474	Control - Ivory 65X2
	"	70473	" - Walnut 65X1
	"	71821	" - Maroon 65X1
	Spring	30900	Retaining Spring for Knob



CHASSIS—BOTTOM VIEW





PURITAN MODEL 508

TRADE NAME Puritan Model 508 (Code 7A35SW)
SUPPLIER Pure Oil Co., 35 Wacker Drive, Chicago, Ill.
TYPE SET AC 3 Band Superheterodyne - Self Contained Loop Ant. - 5 button Automatic Tuning
TUBES (SEVEN) Types, 6SK7 RF Amp., 6SA7 1st Det.-Osc., 6SK7 IF Amp., 6SQ7 2nd Det.-AVC, 6SJ7 1st AF Amp., 6K6GT/G Power Output, 5Y3GT/G Rectifier.

POWER SUPPLY 105-125 Volts AC

RATING .485Amps. @ 117V AC

TUNING RANGE—BROADCAST 540-1725KC

SHORT WAVE 11.4-15.5MC and 5.9-10MC

ALIGNMENT INSTRUCTIONS

Adjust dial pointer over last mark to left of "55" with rotors in full mesh. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. Loop and chassis in same relative position as they will be with chassis in cabinet.

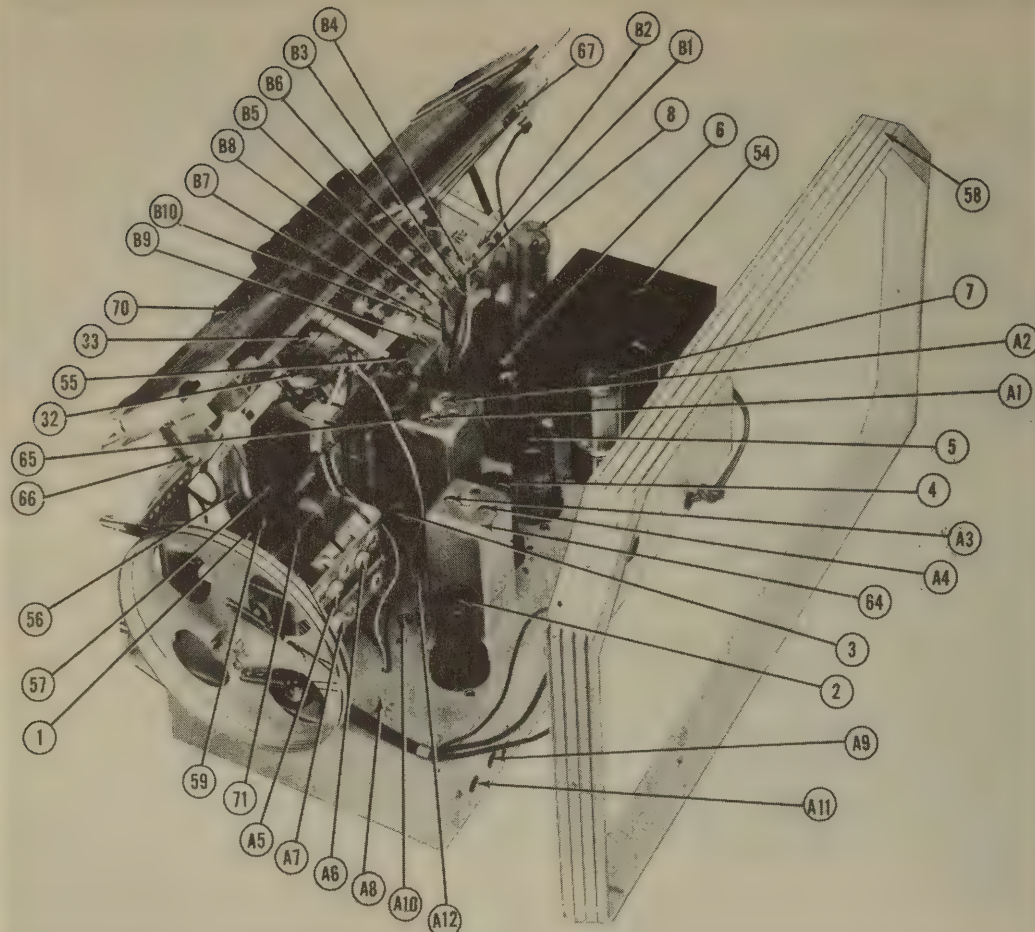
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #8 (signal grid) of 6SA7. Low side to chassis.	455KC	BC (counter-clockwise)	Any point of no interfering signal.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. Repeat adjustments.
.003 MFD	High side to ext. ant. clip on loop frame. Low side to chassis.	1500KC	"	1500KC	"	A5	Adjust for maximum output
"	"	"	"	"	"	A6, A7.	" " " "
"	"	600KC	"	Tune to 600 KC signal.	"	A8	Rock dial and adjust for maximum output. Repeat adjustments A5, A6 and A7 at 1500KC then check A8 at 600KC.
400Ω res	"	15MC	SW	15MC	"	A9	Adjust for maximum output. Check for proper peak by tuning in image at 14.1MC
"	"	"	"	"	"	A10	Rock dial slightly and adjust for maximum output
"	"	9.5MC	31M (clockwise)	9.5MC	"	A11	Adjust for maximum output. Check for proper peak by tuning in image at 8.64C
"	"	"	"	"	"	A12	Rock dial slightly and adjust for maximum output.

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CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PURITAN PART No.	STANDARD REPLACEMENT		
1	RF Amplifier	6SK7	6SK7	8N	
2	1st Det.-Osc.	6SA7	6SA7	8N	
3	IF Amplifier	6SK7	6SK7	8N	
4	2nd Det.-AVC	6SK7	6SK7	8N	
5	1st. AF Amp.	6SJ7	6SJ7	7S	
6	Power Output	6X6GT/G	6X6GT/G	5T	
7	Rectifier	5Y3GT/G	5Y3GT/G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PURITAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
8(A)	20 CAP.	502207	FP339	DY-2x20-400/20-25	EL-312	UF6CJ13
8(B)	10 CAP.					
8(C)	20 CAP.					
9	.05 CAP.	502154	TP415	S-6-.05	TC-15	Tone Compensation
10	.004 CAP.	502150	TP407	S-6-.004	TC-24	6K6 Plate Bypass
11	.02 CAP.	502152	TP423	S-4-.02	TC-12	DT4S2
12	.1 CAP.	502410	TP428	S-4-.1	TC-1	DT4S2
13	.25 CAP.	502405	TP430	S-4-.25	TC-2	DT4P25
14	.004 CAP.	502150	TP430	S-6-.004	TC-24	Negative Feedback
15	.05 CAP.	502157	TP428	S-4-.05	TC-15	DT4S5
16	.05 CAP.	502157	TP428	S-4-.05	TC-15	DT4S5
17	.01 CAP.	502157	TP421	S-4-.01	TC-11	DT4S1
18	.05 CAP.	502157	TP428	S-4-.05	TC-15	DT4S5
19	.1 CAP.	502155	TP428	S-4-.1	TC-1	DT4S5
20	.05 CAP.	502153	TP428	S-4-.05	TC-15	DT4S5
21	.110 CAP.	502160	MC235	MO-5-31	LFM-31	5W5T1
22	.260 CAP.	502271	MC240	MO-5-325	LFM-325	5W5T25
23	.68 CAP.	502167	MC230	MO-5-325	MS-47	5W5Q7
24	.430 CAP.	502163	MC243	MO-5-34	MS-34	5W5T4
25	.39 CAP.	502182	MC223	MO-5-44	LFM-44	5W5Q4
26	.50 CAP.	502411	MC225	MO-5-45	LFM-45	5W5Q5
27	.50 CAP.	502159	MC215	MO-5-41	MS-41	5W5Q5
28	.50 CAP.	502182	MC223	MO-5-44	LFM-44	5W5Q4
29	.39 CAP.	502166	MC215	MO-5-41	MS-41	5W5Q5
30	.82 CAP.	502184	MC240	MO-5-325	LFM-325	5W5T25
31	.70 CAP.	502161	MC255	MO-5-21	LFM-21	1W5D1
32	.270 CAP.	502161	MC255	MO-5-21	LFM-21	1W5D1
33	1000 CAP.	502166	MC255	MO-5-21	LFM-21	1W5D1

*used in Some Models Only.

CONTROLS

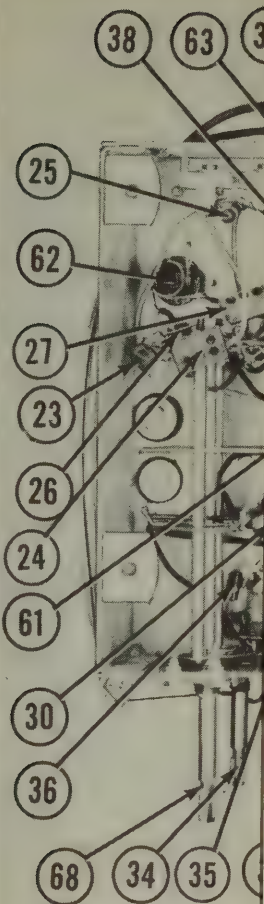
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PURITAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
34(A)	500K2 RESIST-ANCE	502117	MK401	D13-133	AM-60-Z	Volume Control.
34(B)	1 WATT Switch	Not Req.	Not Req.	41	KSS-3	Attach to 33A per instructions
34(C)	1 WATT Switch	Not Req.	Not Req.	41	SW-A	"

PARTS LIST AND DESCRIPTIONS

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		PART No.	IRC PART No.	
35	4.7 Meg.	502468	BTS-4.7 Meg	Y1.-Vi.-Orn. RF Grid
36	560Ω	502127	BTS-560	Grn.-Blue-Br. RF Cathode
37	100KΩ	502132	BTS-100K	Br.-Blk.-Yl. RF Screen Dropping
38	22KΩ	502130	BTS-22K	Red-Red-Or. Osc. Grid
39	33KΩ	502466	BTA-33K	Or.-Or.-Or. Osc. Screen Dropping
40	220Ω	502125	BW-#-220	Red-Red-Br. IF Cathode
41	2.2 Meg.	502135	BTS-2.2 Meg	Red-Red-Grn. AVC Network
42	68KΩ	502467	BTS-68K	Blue-Gray-Or. IF Screen Dropping

CHASSIS—BOTTOM VIEW



VOLTAGE & RESISTANCE MEASUREMENTS

VOLTAGE READINGS

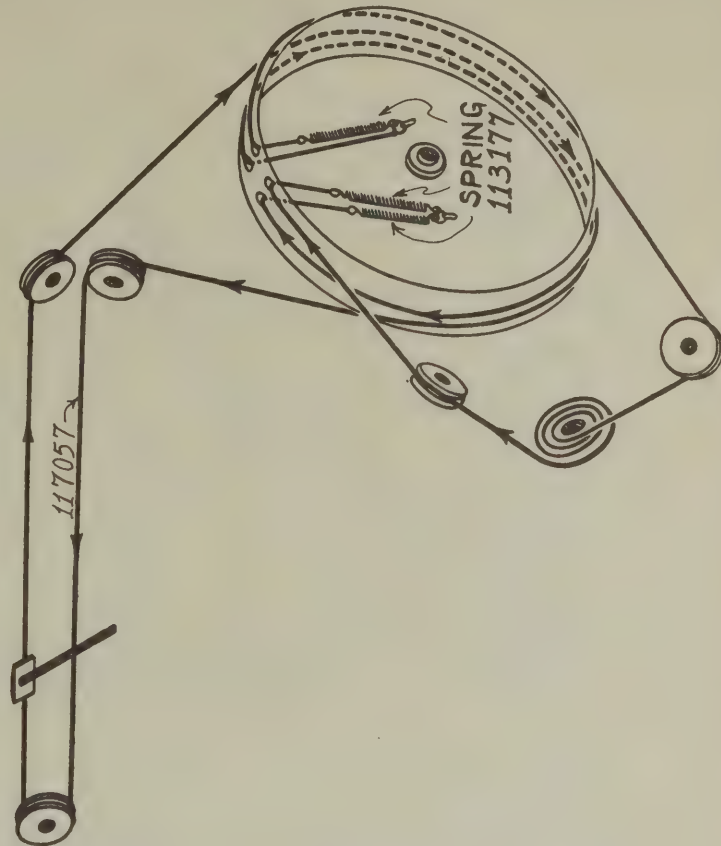
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	OV.	OV.	OV.	-02VDC	3.4VDC	87VDC	OV.	237VDC
2	6SA7	OV.	OV.	OV.	237VDC	-175VDC	OV.	6.25VAC	-06VDC
3	6SK7	OV.	OV.	OV.	OV.	+07VDC	2.2VDC	85VDC	6.25VAC
4	6SQ7	OV.	OV.	OV.	OV.	-35VDC	-35VDC	OV.	6.25VAC
5	6SJ7	OV.	OV.	OV.	OV.	115VDC	22VDC	22VDC	115VDC
6	6K6GT	OV.	OV.	OV.	220VDC	237VDC	-7.2VDC	-18VDC	6.25VAC
7	5Y3GT	OV.	OV.	OV.	285VDC	OV.	310VAC	OV.	295VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
2	6SA7	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
3	6SK7	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
4	6SQ7	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
5	6SJ7	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
6	6K6GT	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.
7	5Y3GT	OV.	OV.	OV.	OV.	OV.	OV.	OV.	OV.

- 1 - DC Voltage measurements are at 20,000 ohms 4 - Line voltage maintained at 117 volts for per volt; AC Voltages measured at 1,000 ohms. voltage readings.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.

DIAL CORD DRIVE



PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

TUBES

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		PURITAN PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amplifier	6SK7	6SK7	8N	
2	1st Det.-Osc.	6SA7	6SA7	8R	
3	IF Amplifier	6SK7	6SK7	8N	
4	2nd Det.-AVC	6SK7	6SK7	8Q	
5	1st P.F. Amp.	6SK7	6SK7	8N	
6	Power Out put	6X6GT/G	6X6GT/G	7S	
7	Rectifier	5Y3GT/G	5Y3GT/G	5T	

CAPACITORS

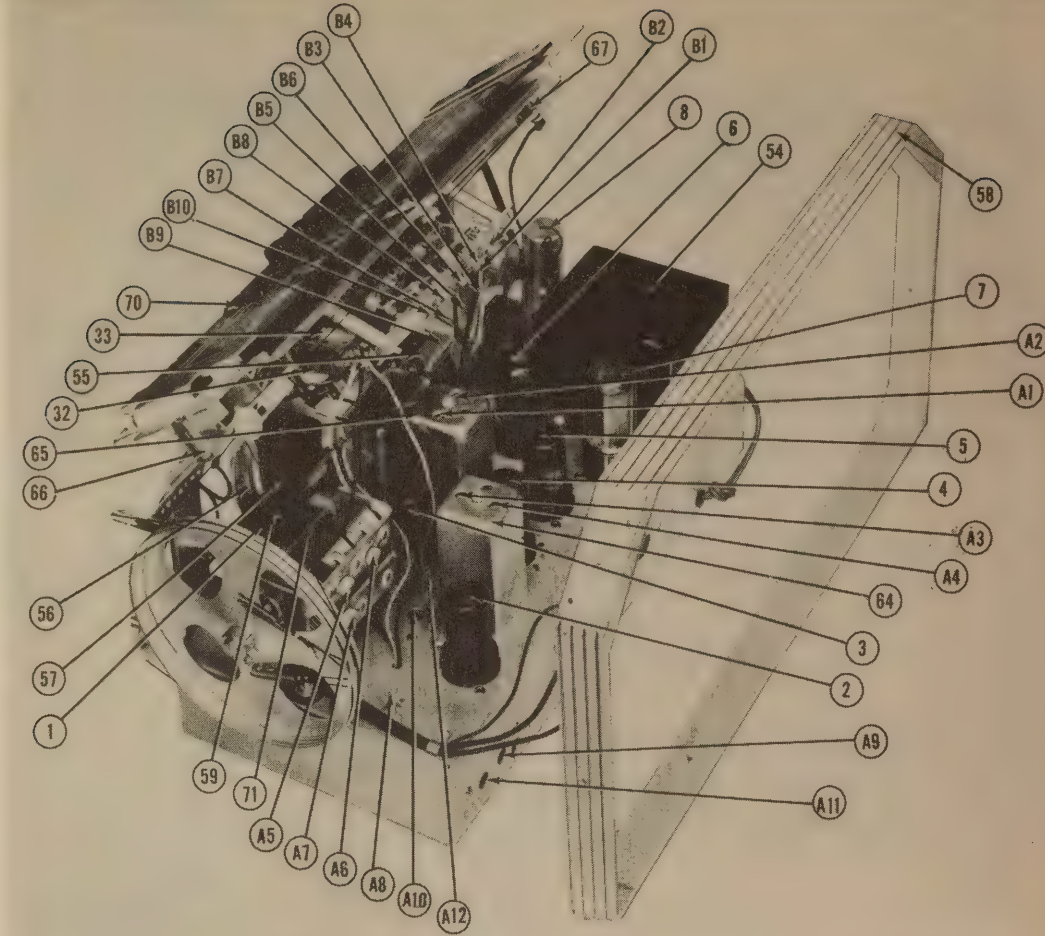
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		PURITAN PART No.	REPLACEMENT DATA				CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT		MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.		
8(A) (B) (C)	20 10 20	400 400 25	502207	FP239	DY-2x20-400/ 20-25	EL-312	AF22J4A	UP8CJ13	Filter
9	.05	600	502154	TP415	S-6-.05	TC-15	684--.05	D7855	Tone Compensation
10	.004	800	502150	TP407	S-6-.004	TC-24	684--.004	D7854	6K6 Plate Bypass
11	.02	400	502152	TP423	S-4-.02	TC-12	484--.02	D7452	Audio Coupling
12	.1	400	502410	TP428	S-4-.1	TC-1	484--.1	D74F1	Audio Plate Decoup.
13	.25	400	502405	TP430	S-4-.25	TC-2	484--.25	D74F25	Negative Feedback
14	.004	600	502150	TP407	S-6-.004	TC-24	684--.004	D7854	Audio Coupling
15	.05	400	502157	TP423	S-4-.05	TC-15	484--.05	D7455	RF Bypass Pwr. Supp.
16	.05	400	502157	TP423	S-4-.05	TC-15	484--.05	D7455	IF Screen Bypass
17	.01	400	502151	TP421	S-4-.01	TC-11	484--.01	D7451	Osc. Feedback SW
18	.05	400	502157	TP426	S-4-.05	TC-15	484--.05	D7455	RF Screen Bypass
19	.1	200	502155	TP428	S-4-.1	TC-1	484--.1	D74F1	AVC Filter
20	.05	200	502153	TP428	S-4-.05	TC-15	484--.05	D7455	AVC Filter*
21	110	500	502160	MC235	M0.5-31	1FM-31	1438--.0001	SW571	Audio Plate Bypass
22	250	500	502271	MC240	M0.5-325	1FM-325	1468--.00025	SW5725	RF Bypass Diode
23	68	500	502167	MC230	M0.5-34	1MS-47	1469--.00007	SW507	Osc. Coupling SW
24	430	500	502163	MC243	M0.5-34	1MS-34	1469--.0004	SW574	RF Coupling SW
25	39	500	502182	MC223	M0.5-44	1FM-44	1468--.00004	SW504	Fixed Trimmer
26	2	500	502411	MC225	M0.5-45	1FM-45	1468--.00005	SW505	RF Coupling SW
27	50	500	502159	MC215	M0.5-41	1FM-41	1468--.00001	SW501	Osc. Grid Cond.
28	10	500	502285	MC215	M0.5-41	1FM-41	1468--.00001	SW501	RF Trans. Fixed Tuned
29	39	500	502182	MC223	M0.5-44	1FM-44	1468--.00004	SW504	Fixed Trimmer
30	82	500	502166	MC215	M0.5-41	1FM-41	1468--.00001	SW501	Fixed Padder SW
31	670	500	502184	MC240	M0.5-325	1FM-325	1469--.00025	SW5725	Fixed Tuning Osc. P.E.
32	270	500	502161	MC255	M0.3-21	1FM-21	1468--.001	SW571	Screen Bypass P.B.
33	1000	500	502165	MC255	M0.3-21	1FM-21	1468--.001	SW571	Screen Bypass P.B.

*Used in Some Models Only.

CONTROLS

ITEM No.	RATING RESISTANCE	WATTS	REPLACEMENT DATA				INSTALLATION NOTES
			PURITAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
34(A)	500KΩ	1	502117	MK401	D13-133	AM-50-Z	Volume Control.
(B)	Shaft		Not Req.	not Req.	E	KSS-3	Attach to 33A per instructions
(C)	Switch			M26	41	SW-A	" " " " " "



PARTS LIST AND DESCRIPTIONS

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PURITAN PART No.	IRC PART No.	
35	4.7 Meg.	1/4	502468	BTS-4.7 Meg	Y1.-V1.-Grn. RF Grid
36	560K	1/4	502127	BTS-560	Grn.-Blue-Br. RF Cathode
37	100K	1/4	502132	ETS-100K	Br.-Blk.-Y1. RF Screen Dropping
38	22K	1/4	502130	BTS-22K	Red-Red-Or. Osc. Grid
39	33K	1/4	502466	BTA-33K	Or.-Or.-Or. Osc. Screen Dropping
40	220K	1/4	502125	BW-2-220	Red-Red-Br. IF Cathode
41	2.2 Meg.	1/4	502135	BTS-2.2 Meg	Red-Red-Grn. AVC Network
42	68K	1/4	502467	BTS-68K	Blue-Gray-Or. IF Screen Dropping
43	47K	1/4	502131	BTS-47K	Y1.-V1.-Or. Diode Load
44	4.7 Meg.	1/4	502468	BTS-4.7 Meg	Y1.-V1.-Grn. 1st AF Grid
45	2200K	1/4	502128	BTS-2200	Red-Red-Red 1st AF Cathode
46	220K	1/4	502133	BTS-220K	Red-Red-Y1. 1st AF Plate Load
47	100K	1/4	502132	BTS-100K	Br.-Blk.-Y1. 1st AF Plate Filter
48	2.2 Meg.	1/4	502135	BTS-2.2 Meg	Red-Red-Grn. 1st AF Screen Dropping
49	470K	1/4	502134	BTS-470K	Y1.-V1.-Y1. Output Grid
50	330K	1/4	502137	BW-2-330	Or.-Or.-Br. Fixed Bias
51	4700K	1/4	502291	BTS-4700	Y1.-V1.-Red Tone Compensation
52	560K	1/4	502127	BTS-560	Grn.-Blue-Br. "
53	470K	1/4	502134	BTS-470K	Y1.-V1.-Y1. AVC Network*

*Used in Some Models Only

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	PURITAN PART No.	STANCOR PART No.	THORDARSON PART No.	
54	117V. @ .485A	300V. CT @ .068A	5V. @ 1.82A	6.2V @ 2.02A	502174	P-6120	T-13R20	Replacement Parts P-6120 and T-13R20 require new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.		PURITAN PART No.	STANCOR PART No.	THORDAR PART No.	
	PRI.	SEC.	PRI.	SEC.				
55	9433Ω	3.6Ω	665Ω	.6Ω	504124	A-3878	T-14884	Used with speaker D-504205
55A					504208			Used with speaker R-504205
55B					504206			Used with speaker M-504205

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD RES.	VC IMP.	PURITAN PART No.	JENSEN PART No.		
56	1000Ω	3.5Ω	504205	ST-56711		**Improvise mounting bracket.
57	COND DIA. 6-3/16"	VC DIA. 9/16"	504125	NOT READILY REPLACEABLE		USE COMPLETE SPEAKER UNIT.
56(A)			M-504205			
57(A)			504207			
56(B)			M-504205			
57(B)			504209			

PARTS LIST AND DESCRIPTIONS

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	PURITAN PART No.	MEISSNER PART No.	
58	Loop Ant.	0Ω	0Ω	502106		Adjustable Iron Core Slug
59	BC Ant. Coil	.5Ω	3Ω	502112	14-1027	
60	SW Ant. Coil	.5Ω	0Ω	502110	14-1044	
61	BC RF Coil	110Ω	0Ω	502113	14-1027	
62	BC Osc. Coil	5Ω	5Ω	502114		
63	SW Osc. Coil	.5Ω	0Ω	502111	14-1046	
64	Input IF	20Ω	20Ω	502102	16-8658	
65	Output IF	19Ω	19Ω	502103	16-8660	

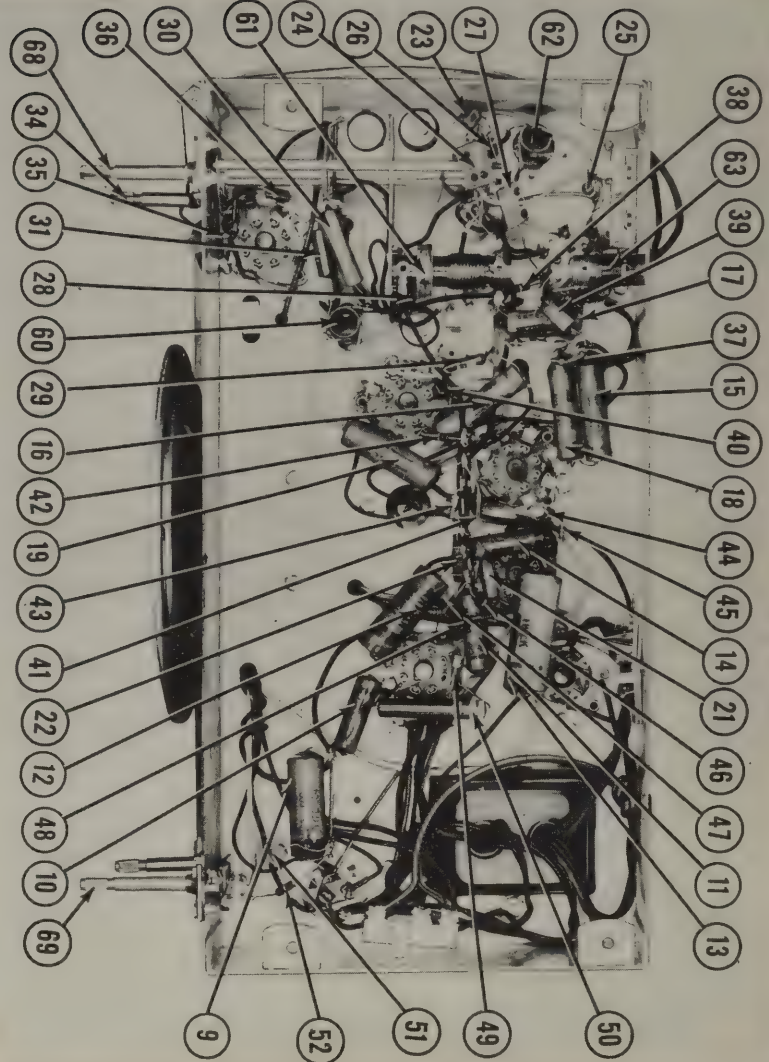
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PURITAN PART No.		
66	Bayonet	6-B	0.25	Blue	110629		#44
67	"	"	"	"	"		"

MISCELLANEOUS

ITEM No.	PART NAME	PURITAN PART No.	NOTES
68	Band Switch	502119	
69	Tone Switch	502118	
70	Switch	502120	Push Button Auto. Tuning
71	Tuning Cap.	502122	3 Gang Variable Cap.
A9	Trimmer	502108	SW Oscillator 2-15MMF
A11	"	Part of 502108	31 Meter Oscillator 2-15 MMF
A10	"	502109	SW Antenna 2-15 MMF
A12	"	Part of 502108	31 Meter Antenna 10-40 MMF
	Dial Scale	502215	Glass
	Escutcheon	502699	Push Button
	Knob	502704	Volume & Tuning
	"	502705	Tone & Band Switch
	Push Button	501495	Automatic Tuning

CHASSIS—BOTTOM VIEW



PUSHBUTTON ADJUSTMENTS

The pushbuttons from left to right (facing front of receiver) cover the following frequency ranges: 540 to 1000KC, 650 to 1300KC, 650 to 1300KC, 975 to 1600KC, 975 to 1600KC. To adjust the pushbuttons to desired stations, proceed as follows:

- 1 - Set band switch on "AM" position and turn set on to allow for warm-up period.
- 2 - Select a station which falls in the frequency range of the pushbutton on the extreme left and adjustments B1, B2 (540-1000KC).
- 3 - Push in "Manual" button and tune in the station to identify program.
- 4 - Push in button on extreme left and adjust B1 to tune in station (adjust for deepest tone). Adjust B2 for maximum volume of station.
- 5 - Proceed in the same manner for setting up the remaining pushbuttons, always selecting a station within the frequency range of the pushbutton and its associated adjustments. Adjust B3, B5, B7, and B9 to tune in station. Adjust B4, B6, B8 and B10 for maximum volume.

VOLTAGE & RESISTANCE MEASUREMENTS

VOLTAGE READINGS

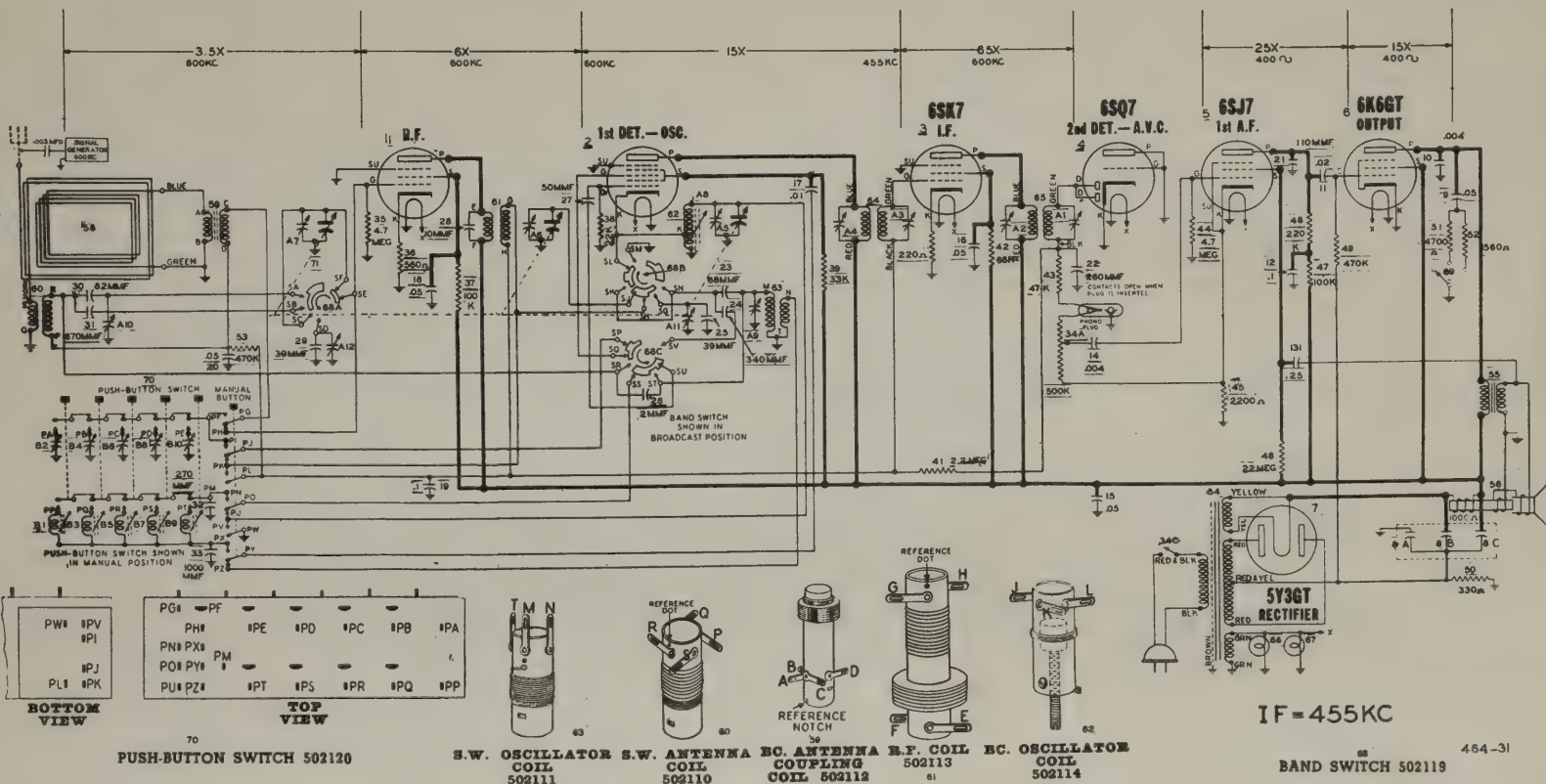
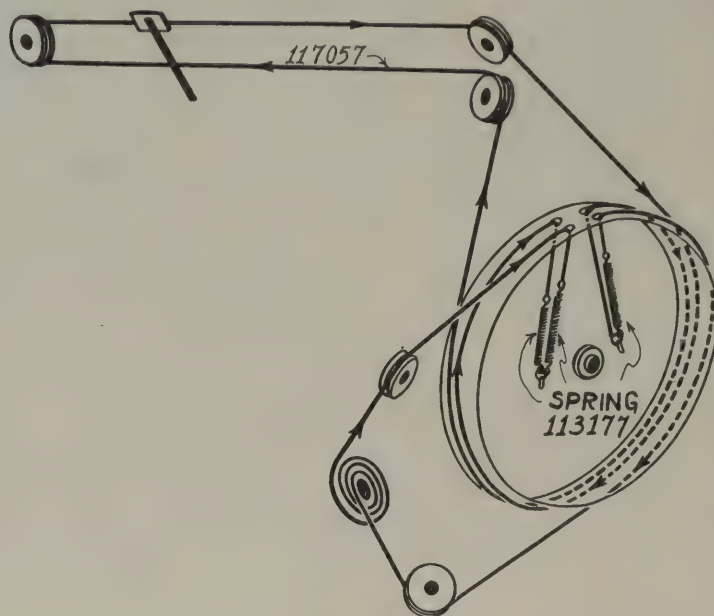
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	OV.	6.25VAC	OV.	-0.2VDC	3.4VDC	67VDC	OV.	237VDC
2	6SA7	OV.	OV.	237VDC	52VDC	-1.75VDC	OV.	6.25VAC	-0.6VDC
3	6SK7	OV.	OV.	OV.	-0.7VDC	2.2VDC	85VDC	6.25VAC	237VDC
4	6SQ7	OV.	OV.	OV.	-35VDC	-35VDC	OV.	6.25VAC	OV.
5	6SJ7	OV.	OV.	115VDC	OV.	115VDC	22VDC	6.25VAC	115VDC
6	6K6GT	OV.	OV.	220VDC	237VDC	-7.2VDC	-18VDC	6.25VAC	OV.
7	5Y3GT	OV.	295VDC	OV.	310VAC	OV.	310VAC	OV.	295VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0 Ω	.25 Ω	0 Ω	1.7 MEG	540 Ω	3.7 MEG	0 Ω	3.6 MEG
2	6SA7	0 Ω	0 Ω	3.6 MEG	3.65 MEG	215 K Ω	.5 Ω	.25 Ω	1.5 MEG
3	6SK7	0 Ω	0 Ω	0 Ω	1.6 MEG	205 Ω	3.7 MEG	.25 Ω	3.6 MEG
4	6SQ7	0 Ω	0 Ω	0 Ω	540 K Ω	540 K Ω	0 Ω	.25 Ω	0 Ω
5	6SJ7	0 Ω	0 Ω	2.2 K Ω	3.75 MEG	22 K Ω	5.8 MEG	.25 Ω	3.9 MEG
6	6K6GT	0 Ω	0 Ω	3.6 MEG	3.6 MEG	420 K Ω	318 Ω	.25 Ω	0 Ω
7	5Y3GT	INF	3.6 MEG	INF	530 Ω	INF	525 Ω	.5 Ω	3.6 MEG

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

DIAL CORD DRIVE

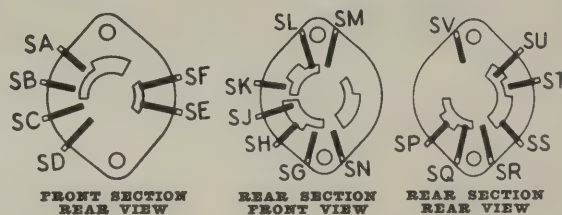


The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. The following precautions should be observed in making stage gain measurements for this set:

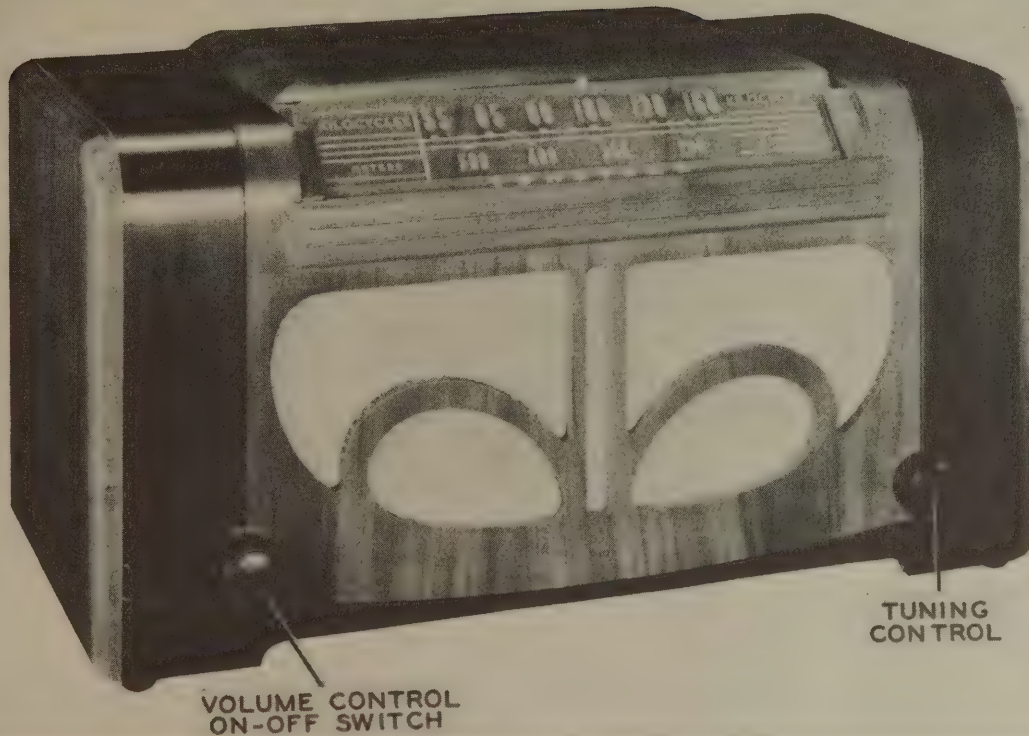
- 1 - Use the 600KC signal with 400-cycle modulation connected as shown. (Use nearby frequency if local station interferes.)
- 2 - For RF and IF measurements connect negative terminal of 3-volt battery to AVC lead and positive terminal to B-. IMPORTANT: Disconnect battery when measuring audio stage gains.
- 3 - Be sure receiver is carefully tuned to generator signal. (Use weak signal for sharp tuning.)

AUDIO OSCILLATION

The audio system of this receiver utilizes a two stage type of inverse feed-back arrangement and should it ever be necessary to replace the speaker or output transformer it is important to maintain a definite phase relationship in the feed-back circuit. If the connections to the output transformer secondary are reversed or if the feed-back connection is made to the wrong side of the output transformer secondary, the system will become regenerative instead of degenerative. Under these conditions audio oscillation may result. If that occurs, oscillation may be prevented by reversing the connections to the primary of the output transformer.



The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



TRUETONE
MODEL D-2621

TRUETONE
MODEL D-2621

TRUETONE MODEL D-2621

TRADE NAME	Truetone Model D-2621
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	Battery Operated Superheterodyne - Self Contained Loop Antenna
TUBES (FOUR)	Types, 1N5GT RF Amp., 1A7GT Converter, 1N5GT IF Amp., 3Q5GT Power Output.
POWER SUPPLY	90 Volt "B" Battery & 1.5 Volt "A" Battery in Pack Form (Wizard B6430 or equivalent)
RATING	11.6 MA @ 90 Volts DC plus .330 Amps. @ 1.5 Volt DC
TUNING RANGE—BROADCAST	540-1620KC
	SHORT WAVE

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to top cap (grid) 1A7. Low side to chassis.	455KC	High freq. end tuning gang at minimum capacity.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output.
.0001 MFD	High side to ant. wire (green). Low side to chassis.	1620KC	"	"	A5	" " " "
"	"	1400KC	Tune in 1400 KC signal.	"	A6,A7.	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRUESTONE PART No.	STANDARD REPLACEMENT		
1	RF Amp.	1N5GT	1N5GT	5Y	
2	Converter	1A7GT	1A7GT	7Z	
3	IF Amp.	1N5GT	1N5GT	5Y	
4	Det.-AVC.-AF	1H5GT	1H5GT	5Z	
5	Power Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TRUESTONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6	CAP. 16	25600	TC44	M-16-150	UT-161	BR1615
7	150		TP408	S-6-005	TC-25	DT6D5
8	.005 600		TP408	S-6-005	TC-25	DT6D5
9	.005 600		TP408	S-3-005	TC-25	DT6D5
10	.005 1200		TP423	S-4-05	TC-15	DT4S5
11	.05 200		TP426	S-4-05	TC-15	DT4S5
12	.05 200		TP426	S-4-05	TC-15	DT4S5
13	.01 400		TP421	S-4-01	TC-11	DT4S1
14	100 500		MC235	M0-5-31	1FM-31	SW5T1
15	50 500		MC225	M0-5-45	1FM-45	SW5Q5

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TRUESTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	500KΩ	25367	MR48	D13-133	M-60-Z	Volume Control
B	Start	Not Req.	Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch	"	M27	42	SW-A2	"

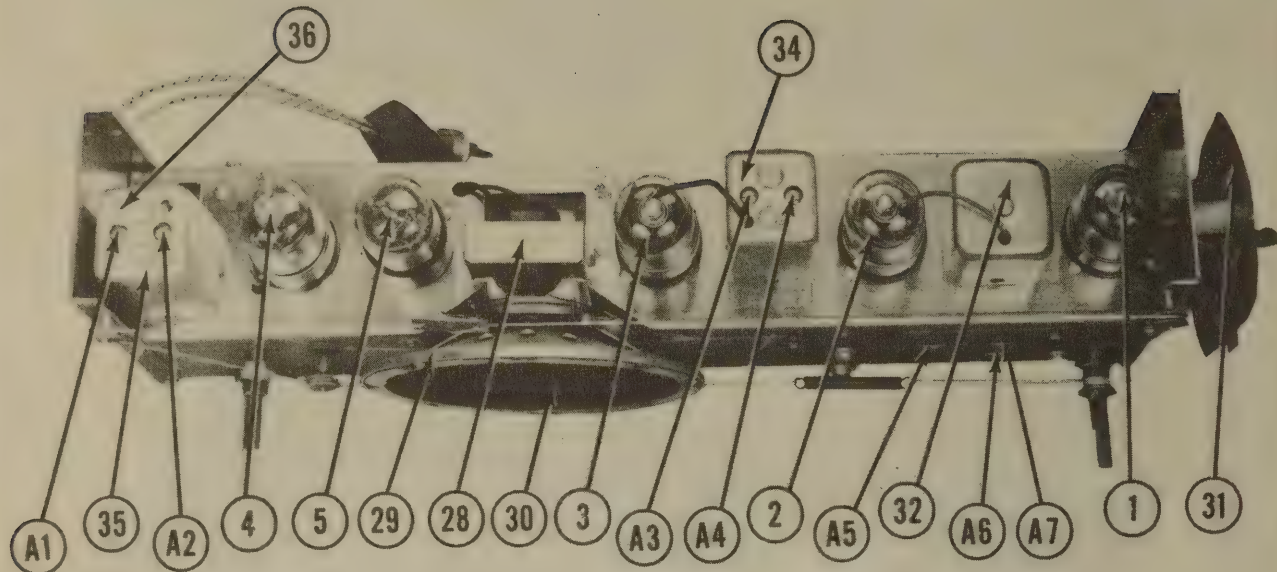
RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		TRUESTONE PART No.	IRC PART No.	
17	1000Ω			Br.-Blk.-Red Ant. Loading
18	1 Meg.	BTS-1 Meg.	BTS-1000	Br.-Blk.-Grn. AVC Network
19	1 Meg.	BTS-1 Meg.	BTS-1000	Br.-Blk.-Grn. AVC Network
20	150KΩ	BTS-150K	BTS-150K	Br.-Grn.-Yl. Osc. Grid
21	68KΩ	BTS-68K	BTS-68K	Blue-Gray-Or. Osc. Screen Dropping
22	15 Meg.	BTS-15 Meg.	BTS-150K	Br.-Grn.-Blue 1st AF Grid
23	470KΩ	BTS-470K	BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
24	2.2 Meg.	BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
25	470Ω	BTS-470	BTS-470	Yl.-Vi.-Br. Fixed Bias
26	15KΩ	BTS-15K	BTS-15K	Br.-Grn.-Or. Tone Compensation
27	.56Ω	BW-5--56	BW-5--56	Grn.-Blue-Silver Series Filament

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	SEC.	TRUESTONE PART No.	STANCOR PART No.	
28	9000Ω	3.1Ω	470Ω .5Ω	25694	A-3878†	† Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

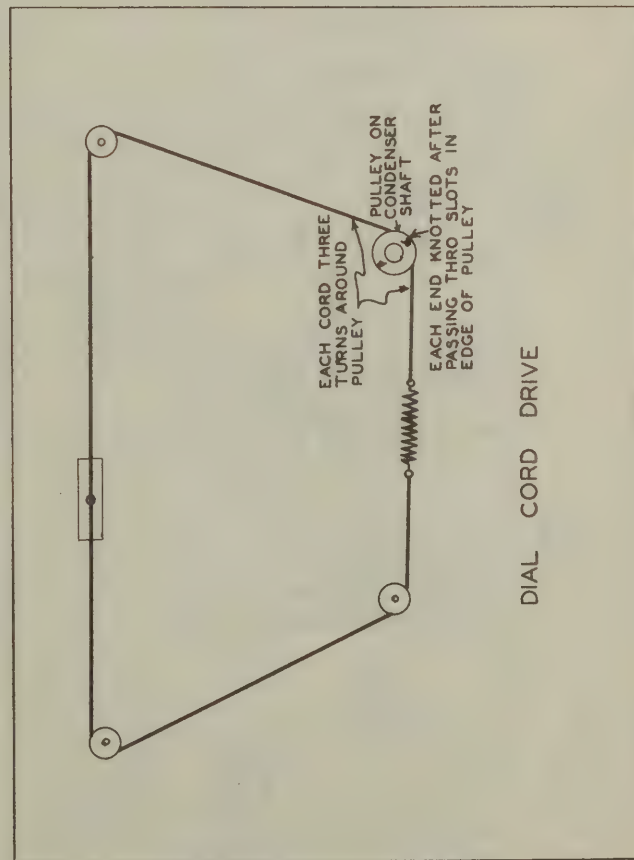
ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		TRUE-TONE PART No.	JENSEN PART No.	
29	FIELD PK VC IMP. 3.1K	25583	ST-107	
30	CONE DIA. 4-9/16 VC DIA. 9/16	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

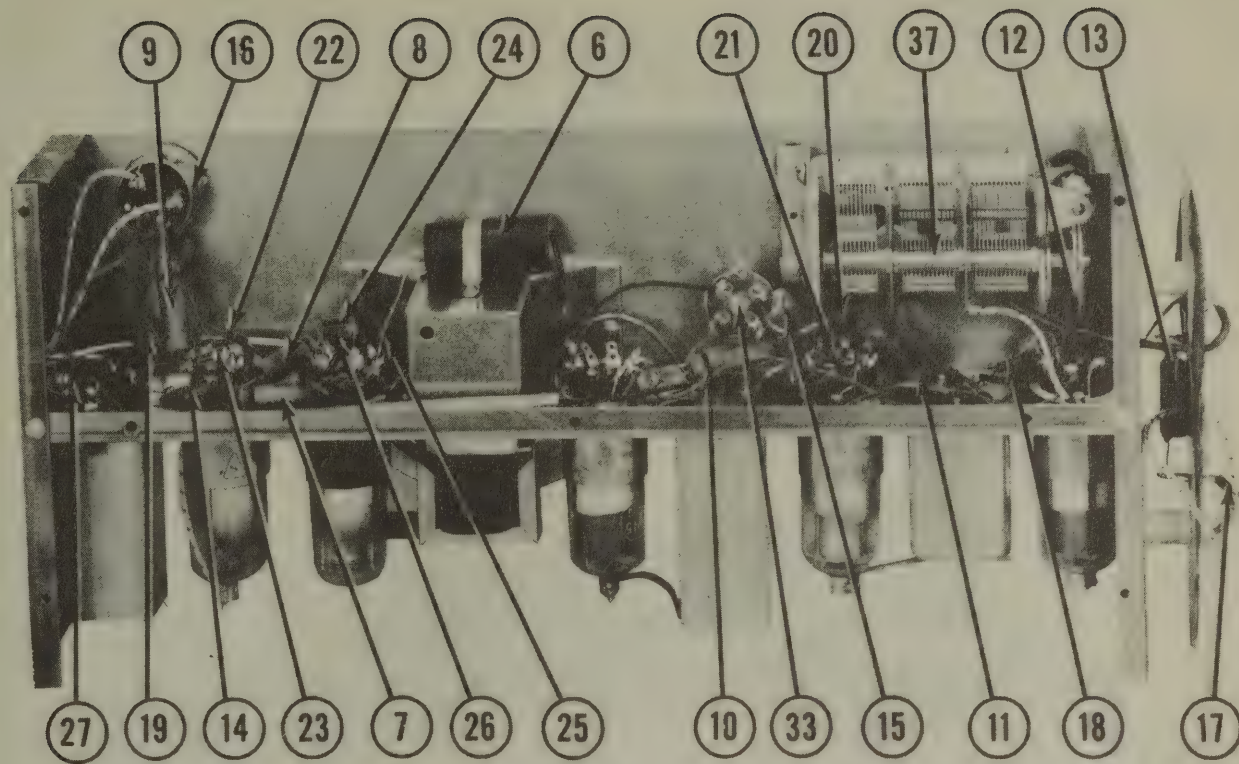
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRUE-TONE PART No.	WEISSNER PART No.	
31	Loop Ant.	1K	2.4K			
32	RF Coil	72K	6K		14-7558	
33	Osc. "	9K	8.8K		14-1040	
34	Input IF	17.5K	17.5K		18-8658	
35	Output IF	17.5K			18-8660	

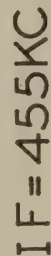
MISCELLANEOUS

ITEM No.	PART NAME	TRUE-TONE PART No.	NOTES
36	Switch	25319	Battery "Economizer"
37	Tuning Cap. Dial Cord	25592 25767	3 Gang Variable Cap. Complete w/ Spring & Pointer Coupling
	Knob	25698	Tuning or Volume
	Battery Plug	25612	Cable, 4 prong
	Dial Scale	25615	



CHASSIS—BOTTOM VIEW





464-32

VOLTAGE READINGS

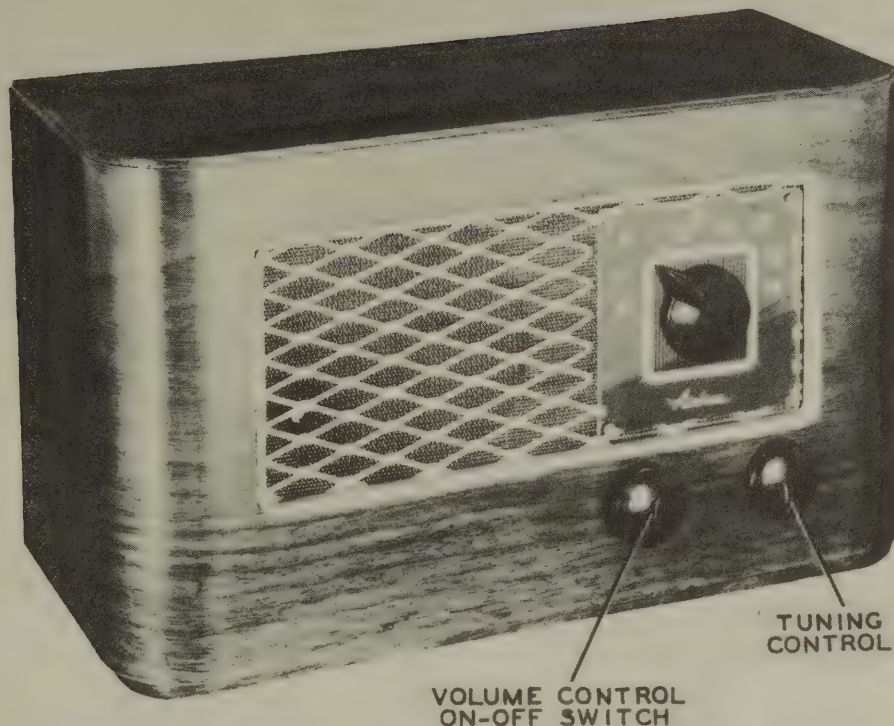
		VOLTAGE READINGS									
	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1	1N5GT	OV.	1.57VDC	87VDC	87VDC	OV.	OV.	OV.	OV.	OV.
2	2	1A7GT	OV.	1.57VDC	87VDC	35VDC	-34VDC	87VDC	OV.	87VDC	OV.
3	3	1N5GT	OV.	1.57VDC	87VDC	87VDC	OV.	OV.	OV.	OV.	OV.
4	4	1H5GT	OV.	1.57VDC	62VDC	87VDC	OV.	OV.	OV.	-02VDC	OV.
5	5	3Q5GT	85VDC	1.57VDC	85VDC	87VDC	-25VDC	-6VDC	1.57VDC	OV.	OV.

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

RESISTANCE READINGS

Item	Type	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	IN5GT	0 a	*	1.4 MEG	1.4 MEG	2.2 MEG	1.4 MEG	*	1.4 MEG	2.2 MEG
2	14GT	0 a	*	1.4 MEG	1.4 MEG	1.4 MEG	1.4 MEG	*	1.4 MEG	1.4 MEG
3	IN5GT	0 a	*	1.4 MEG	1.4 MEG	1.4 MEG	1.4 MEG	*	1.4 MEG	1.4 MEG
4	14GT	0 a	*	2.2 MEG	1.4 MEG	500 K Ω	1.4 MEG	*	1.4 MEG	1.4 MEG
5	305GT	1.1 MEG	*	1.4 MEG	1.4 MEG	2.3 MEG	150 Ω	*	0 a	0 a

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



AIRLINE
MODELS 54WG-1801A, 54WG-1801B,
64WG-1801C

AIRLINE
MODELS 54WG-1801A, 54WG-1801B,
64WG-1801C

AIRLINE MODEL 64WG-1801C

TRADE NAME Airline Models 54WG-1801A, 54WG-1801B, 64WG-1801C						
MANUFACTURER Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.						
TYPE SET AC - DC Superheterodyne - Self Contained Loop Antenna						
TUBES (FIVE) Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.						
POWER SUPPLY 105-125 Volts AC-DC			RATING - .245 Amps. @ 117V AC			
TUNING RANGE—BROADCAST 540-1600KC			SHORT WAVE			
ALIGNMENT INSTRUCTIONS						
Volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #4 (grid) 12SK7. Low side to B-.	455KC	Turn rotor full open,	Across voice coil	A1,A2.	Adjust for maximum output. Use isolation transformer if available. If not, connect capacitor in series with low lead to B- and decrease dummy ant. to .001 MFD to prevent excessive hum modulation.
"	High side to pin #8 (grid) 12SA7. Low side to B-.	"	"	"	A3,A4.	"
"	"	1620KC	"	"	A5	"
50 MMFD	High side to ext. ant. clip. Low side to chassis.	1400KC	Tune in 1400 KC. Set pointer at 1400KC mark.	"	A6	Adjust for maximum output. This adjustment made with chassis and back in cabinet.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIRLINE PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	8R	
2	If Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		AIRLINE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	50	45X341	2N521	DHN-2X50-150	TA-530	Filter - Red
7	150					Line Filter
8	150	D68104	TP428	S-4-1	TC-1	Line Isolating
9	400	567204	TP429	S-4-2	TC-2	SOL6 Plate Bypass
10	200	566103	TP421	S-4-01	TC-11	"
11	200	566103	TP421	S-4-01	TC-11	Audio Coupling
12	200	566103	TP421	S-4-01	TC-11	"
13	200	566103	TP421	S-4-01	TC-11	"
14	200	566103	TP421	S-4-01	TC-11	"
15	200	566103	TP421	S-4-01	TC-11	"
16	200	566103	TP421	S-4-01	TC-11	"
17	200	566103	TP421	S-4-01	TC-11	"
18	200	566103	TP421	S-4-01	TC-11	"
19	200	566103	TP421	S-4-01	TC-11	"
20	200	566103	TP421	S-4-01	TC-11	"
21	200	566103	TP421	S-4-01	TC-11	"
22	200	566103	TP421	S-4-01	TC-11	"
23	200	566103	TP421	S-4-01	TC-11	"
24	200	566103	TP421	S-4-01	TC-11	"
25	200	566103	TP421	S-4-01	TC-11	"
26	200	566103	TP421	S-4-01	TC-11	"
27	200	566103	TP421	S-4-01	TC-11	"
28	200	566103	TP421	S-4-01	TC-11	"
29	200	566103	TP421	S-4-01	TC-11	"
30	200	566103	TP421	S-4-01	TC-11	"
31	200	566103	TP421	S-4-01	TC-11	"
32	200	566103	TP421	S-4-01	TC-11	"
33	200	566103	TP421	S-4-01	TC-11	"
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35	200	566103	TP421	S-4-01	TC-11	"
36	200	566103	TP421	S-4-01	TC-11	"
37	200	566103	TP421	S-4-01	TC-11	"
38	200	566103	TP421	S-4-01	TC-11	"
39	200	566103	TP421	S-4-01	TC-11	"
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49	200	566103	TP421	S-4-01	TC-11	"
50	200	566103	TP421	S-4-01	TC-11	"
51	200	566103	TP421	S-4-01	TC-11	"
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65	200	566103	TP421	S-4-01	TC-11	"
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97	200	566103	TP421	S-4-01	TC-11	"
98	200	566103	TP421	S-4-01	TC-11	"
99	200	566103	TP421	S-4-01	TC-11	"
100	200	566103	TP421	S-4-01	TC-11	"

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		AIRLINE PART No.	MALLORY PART No.	CLAROSTAT PART No.	CLAROSTAT PART No.	
17A	500KΩ	36X340	MK401	D13-133	AM-60-Z	Volume Control
17B	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17C	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17D	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17E	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17F	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17G	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17H	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17I	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17J	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17K	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17L	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17M	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17N	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17O	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17P	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17Q	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17R	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17S	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17T	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17U	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17V	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17W	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17X	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17Y	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17Z	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AA	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AB	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AC	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AD	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AE	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AF	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AG	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AH	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AI	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AJ	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AK	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AL	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AM	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AN	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AO	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AP	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AQ	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AR	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AS	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AT	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AU	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AV	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AW	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AX	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AY	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17AZ	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BA	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BB	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BC	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BD	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BE	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BF	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BG	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BH	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BI	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BJ	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BK	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BL	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BM	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BN	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BO	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BP	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BQ	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BR	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BS	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BT	500KΩ	36X340	MK401	D13-133	AM-60-Z	"
17BU	500KΩ	36X340	MK401	D13-133	AM-60-Z	"

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		AIRLINE PART No.	JENSEN PART No.	
30	VC IMP. 3.4Ω	12A429	ST-107*	*Fabricate new mounting bracket.
31	VC DIA. 4-3/4" 1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.	

R F COILS

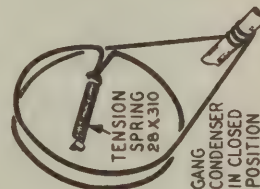
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIRLINE PART No.	WEISSNER PART No.	
32	Loop Ant.	.3Ω	1.3Ω	9A1734		
33	Osc. Coil	.5Ω	6Ω	9A1806	14-1040	
34	Input IF	22Ω	21.8Ω	9A1782	16-6688	
35	Output IF	25.3Ω	19.5Ω	9A1783	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIRLINE PART No.		
36	Bayonet	6-8	0.15	Brown			Type 47

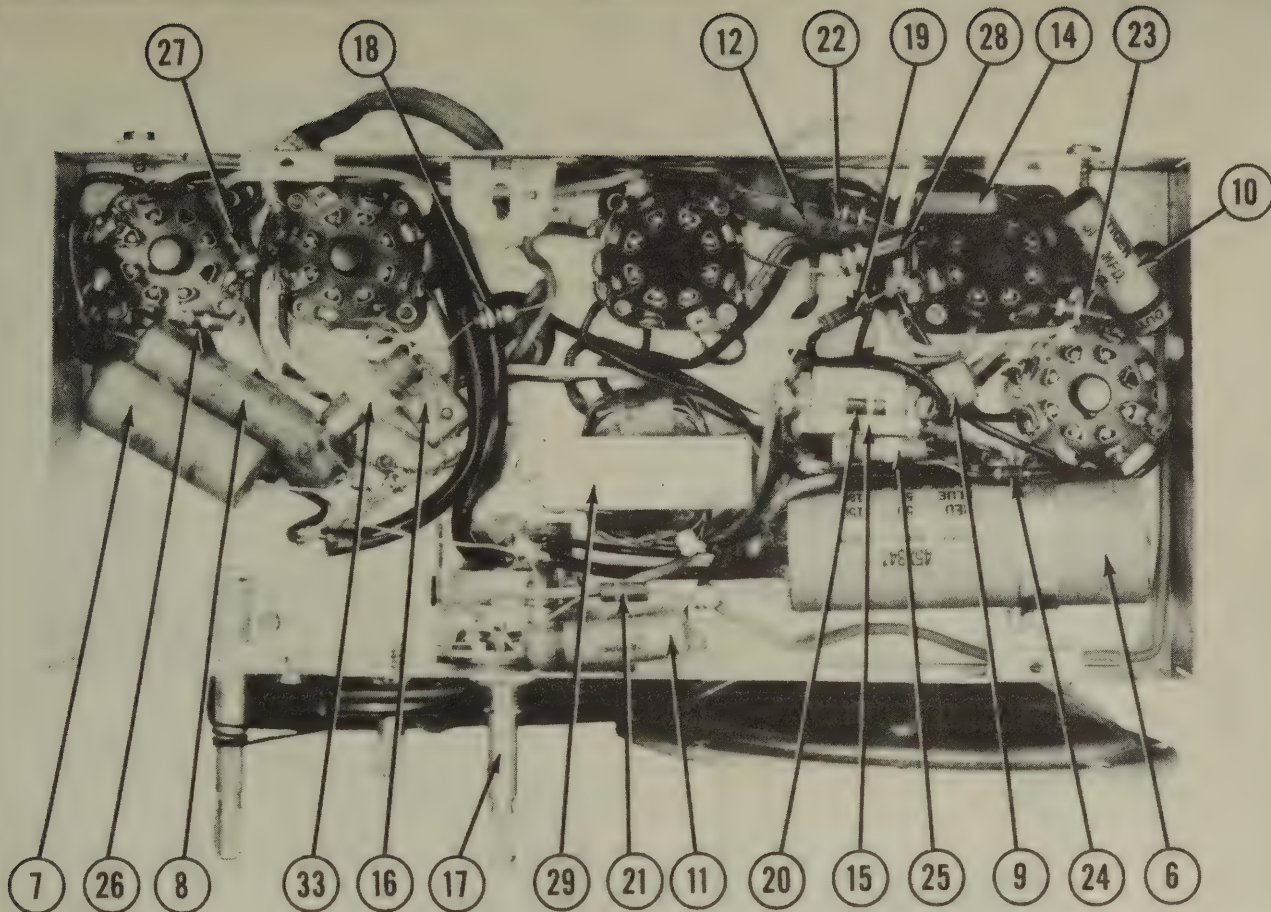
MISCELLANEOUS

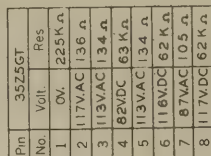
ITEM No.	PART NAME	AIRLINE PART No.	NOTES
37	Tuning Cap. Trimmer Knob Dial Pointer	14A176 17A116 10A297 58X585 15X216	2 Gang Variable Cap. Ant. Adj. 2.5-23 MF Vol. On-Off, Tuning



DRIVE
CORD
DIAGRAM

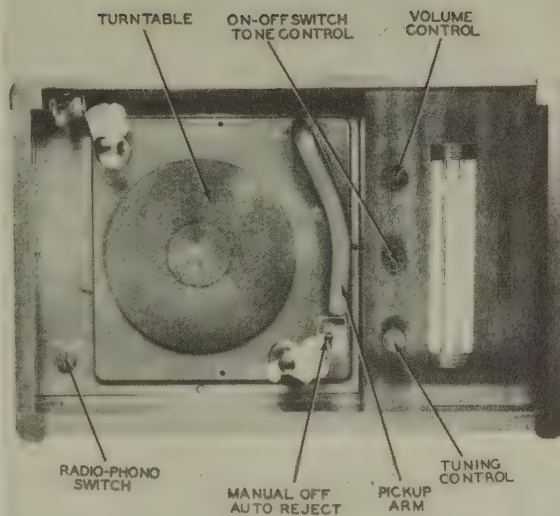
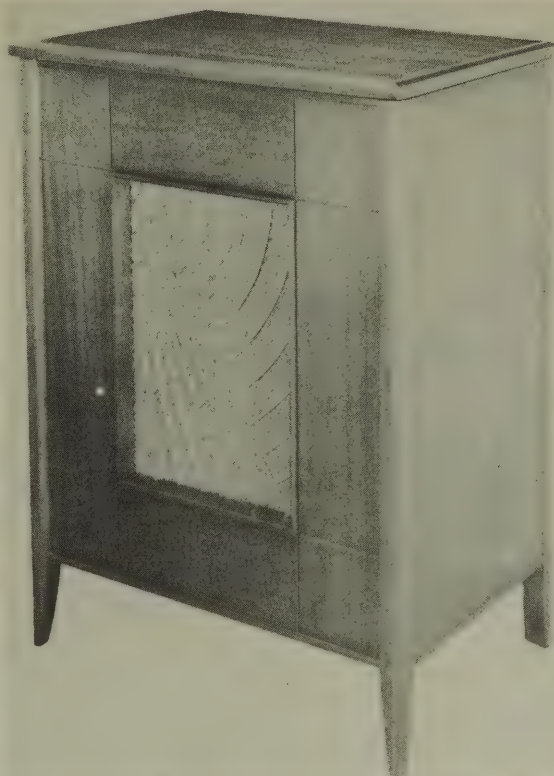
CHASSIS—BOTTOM VIEW





- The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

HOFFMAN
MODEL A500



HOFFMAN MODEL A500

HOFFMAN
MODEL A500

TRADE NAME	Hoffman Model A500 (Chassis No. 107)
MANUFACTURER	Hoffman Radio Corp., 3430 So. Hill St., Los Angeles, California
TYPE SET	AC Operated Combination Automatic Phono. & Superheterodyne Radio - Self Contained Loop Antenna & Automatic Tuning
TUBES (SIX)	Types 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6K6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	117 Volts AC
TUNING RANGE—BROADCAST	535-1640KC
	RATING - .500 Amps. @ 117V AC
	SHORT WAVE

ALIGNMENT INSTRUCTIONS

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain out put reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #8 (grid) 6SA7. Low side to chassis.	455KC	High freq. end of dial. (Gang out of mesh).	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
	Loop	1650KC	"	"	A5	Adjust for maximum output. Connect output of signal generator to a 6" diameter loop of wire and radiate signal into receiver loop. Place loops approx. 1 foot apart.
	"	1400KC	Tune in 1400 KC signal.	"	A6,A7	"

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PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		HOFFMAN PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8N	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SK7	6SK7	8Q	
5	Power Output	6K6GT	6K6GT	7S	
6	Rectifier	6X5UT	6X5UT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		HOFFMAN PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	CAP.	4200	FP359	DY-2x2-450/20-25	EL-350	AF44J4A
7B	20	450				
7C	20	450				
8	.01	600	TP410	S-6-01	TC-11	684-.01
9	.001	600	TP404	S-8-001	TC-21	684-.001
10	.005	600	TP408	S-8-005	TC-25	684-.005
11	.01	600	TP410	S-8-01	TC-11	684-.01
12	.005	600	TP408	S-4-005	TC-25	684-.005
13	.05	200	TP426	S-4-05	TC-15	484-.05
14	.05	400	TP426	S-4-05	TC-15	484-.05
15	.05	400	TP426	S-4-05	TC-15	484-.05
16	.05	400	TP426	S-4-05	TC-15	484-.05
17	.05	200	TP426	S-4-05	TC-15	484-.05
18	100	500	MC235	MO-5-31	1FM-31	1468-.0001
19	100	500	MC235	MO-5-31	1FM-31	1468-.0001
20	100	500	MC235	MO-5-31	1FM-31	1468-.0001
21	100	500	MC235	MO-5-31	1FM-31	1468-.0001
22	500	500	MC245	MO-5-35	1FM-35	1468-.0005

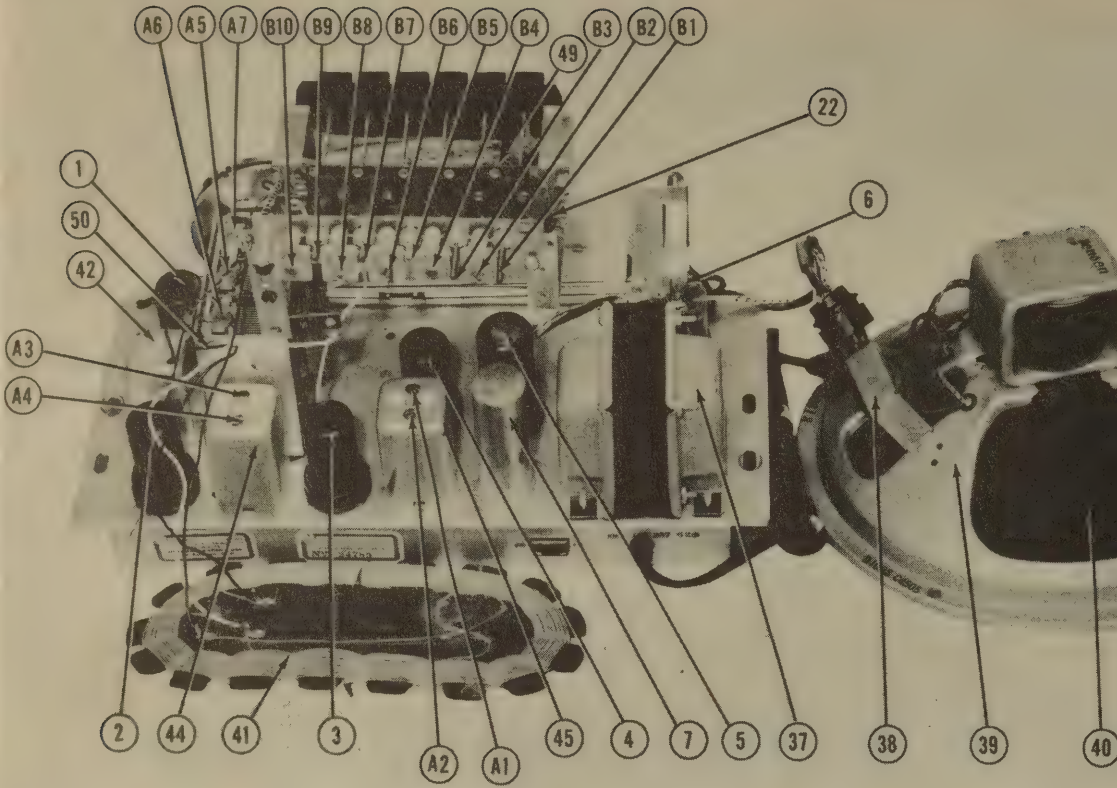
CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		HOFFMAN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
23A	500KΩ	1	MR48	D13-133	M-60-2	Volume Control
23B	500KΩ	1	MR48	D13-133	M-60-2	Attach to 23A per instructions
24A	250KΩ	1	MR44	D13-130	M-64-2	Tone Control
24B	250KΩ	1	MR44	D13-130	M-64-2	Attach to 24A per instructions
24C	Switch		MR25	41	SW-A	" " " " " "

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		HOFFMAN PART No.	MALLORY PART No.	IRC PART No.	HOFFMAN PART No.	
25	220KΩ				BTS-220K	Red-Red-Yl. AVC Network
26	22KΩ				BTS-22K	Red-Red-Or.-Osc. Grid
27	2.2 Meg.				BTS-2.2 Meg	Red-Red-Grn. AVC Network
28	10KΩ				BTS-10K	Br.-Blk.-Or. Screen Dropping
29	47KΩ				BTS-47K	Yl.-Vl.-Or. Diode Load
30	10 Meg.				BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
31	47KΩ				BTS-47K	Yl.-Vl.-Blk. 1st AF Cathode
32	220KΩ				BTS-220K	Red-Red-Yl. 1st AF Plate Load
33	330KΩ				BW-3-330	Or.-Or.-Br. Feedback
34	470KΩ				BTS-470K	Yl.-Vl.-Yl. Output Grid
35	500Ω				BTS-500	Grn.-Br.-Br. Output Cathode
36	220KΩ				BTS-220K	Red-Red-Yl. Series Phono - See Note 1

Note 1 - Located on phono switch mounted in cabinet.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI	SEC. 1	SEC. 2	HOFFMAN PART No.	THORDARN PART No.	
37	117VAC 580VCT @ .480A	5.8VAC @ .063A	2.65A	5000 P-6120*	T-13R20*	*Use universal mounting brackets and drill new mounting holes

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	SEC.	HOFFMAN PART No.	THORDARN PART No.	
38	1050Ω 6.8Ω	470Ω	1Ω	Part of 9012	A-3850 T-14S851	Use wider mounting holes provided.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC IMP.	HOFFMAN PART No.	JENSEN PART No.	
39	1350Ω	6.6Ω	9012	ST-441	
40	9-3/8"	1 1/16"	NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI	SEC.	HOFFMAN PART No.	MEISSNER PART No.	
41	Loop Ant.	.2Ω	1.7Ω	5224	5224	
42	RF Coil	.6Ω	5.2Ω	5212	14-7558	
43	Osc. Coil	5.5Ω	5200	14-1040	14-1040	
44	Input IF	14.4Ω	14.4Ω	5203	16-6658	
45	Output IF	26.5Ω	24Ω	5204	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	HOFFMAN PART No.	
46	Bayonet	6-8	0.25	Blue		
47	"	6-8	0.25	"	Type 44	

MISCELLANEOUS

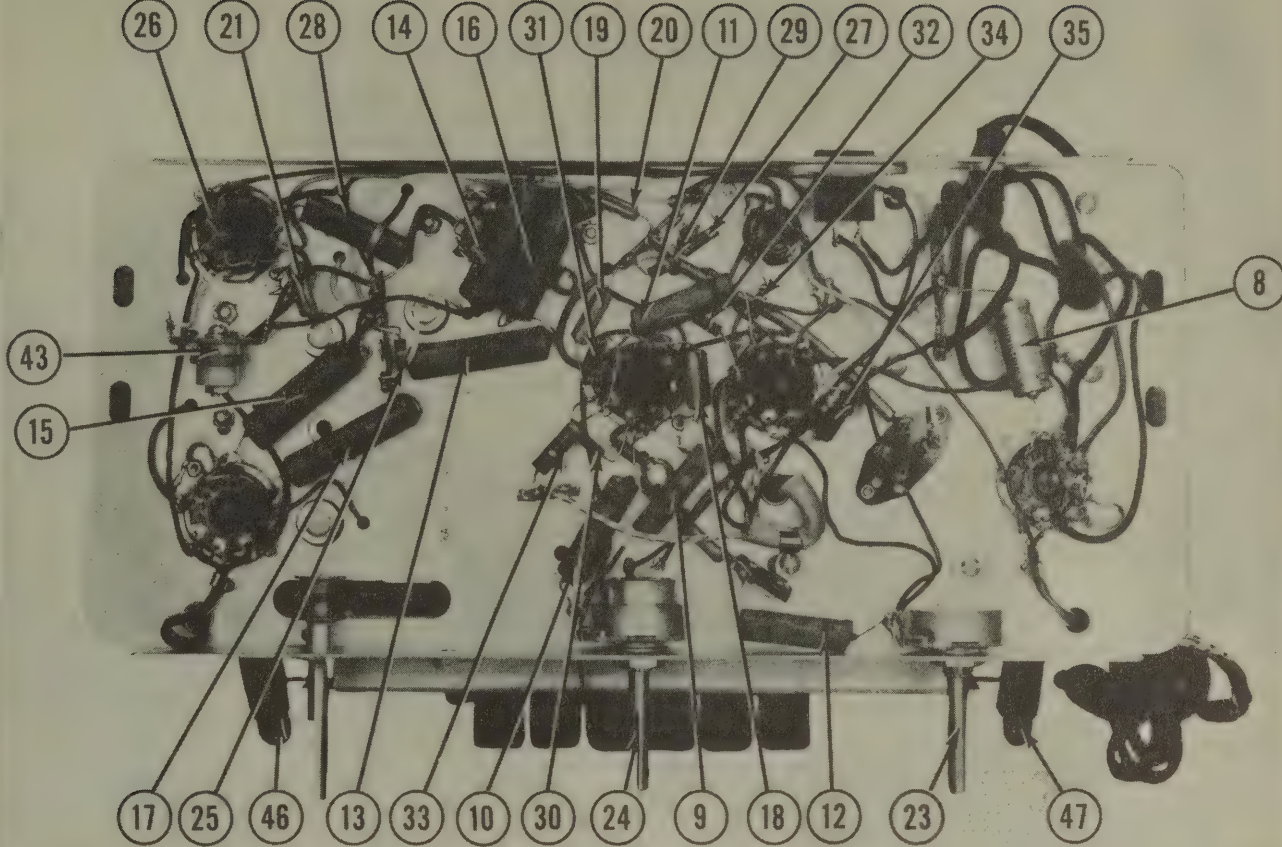
ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
48	Switch	6001	Radio-Phono
49	Tuning Asby.	55200	Pushbutton
50	Tuning Cap.	4400	3 Gang Variable (388-388-180MMF)
	Switch	6000	Pushbutton-Auto. Tun.
	Record Player	9016	Automatic

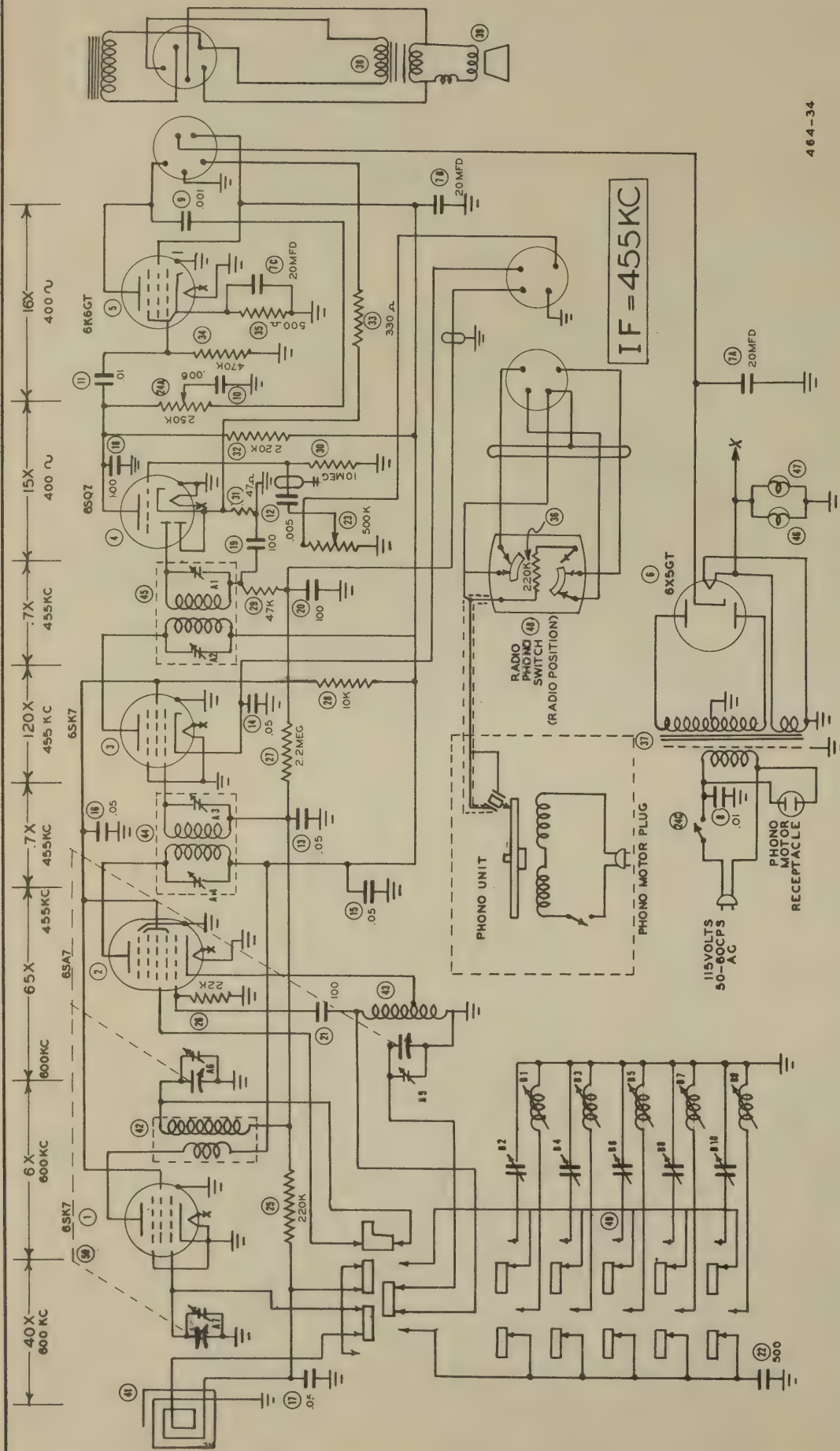
PUSHBUTTON ADJUSTMENTS

The pushbuttons and associated adjustments from rear to front cover the following frequency ranges: 550 to 800KC, 550 to 800KC, 720 to 1200KC, 720 to 1200KC, 900 to 1500KC. To set up pushbuttons to five desired stations, proceed as follows:

- 1 - Turn on receiver and allow it to operate for fifteen minutes or longer.
- 2 - Remove five desired call letter tabs and five transparent tab covers supplied with receiver. (If DIAL tab has not been inserted, remove with call letter tabs and insert in front pushbutton.)
- 3 - Select the lowest frequency station desired that falls within tuning range of rear pushbutton and adjustments B1, B2 (550 to 800KC).
- 4 - Depress DIAL pushbutton and tune in selected station.
- 5 - Depress pushbutton at rear and adjust B1 until station is accurately tuned in.
- 6 - Adjust B2 for maximum volume of station.
- 7 - Insert proper call letter tab and transparent cover.
- 8 - To set up remaining pushbuttons, proceed in the same manner. Adjust B3, B5, B7 and B9 to tune in station and B4, B6, B8 and B10 for maximum volume of station. Always select a station within tuning range of pushbutton and associated adjustments.

CHASSIS--BOTTOM VIEW





NOTE: READINGS TAKEN WITH JUMPERS ACROSS GREEN TO GREEN AND BLACK TO WHITE ON PHONO SOCKET.

VOLTAGE READINGS

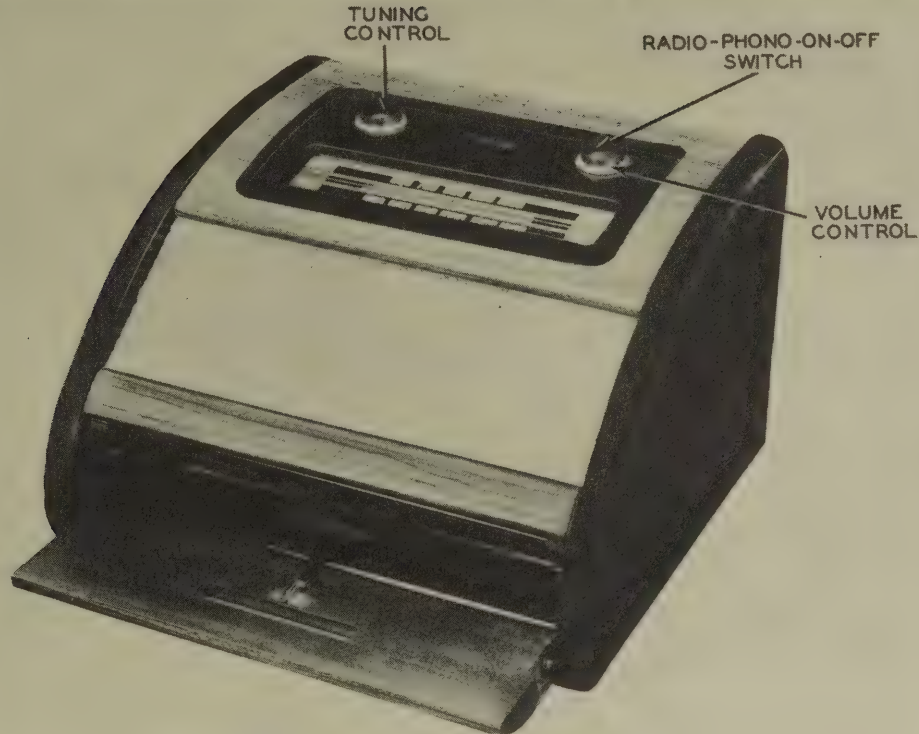
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	OV.	OV.	OV.	OV.	OV.	79VDC	6V.A.C	230VDC
2	6SK7	OV.	OV.	OV.	OV.	OV.	79VDC	6V.A.C	230VDC
3	6SK7	OV.	OV.	OV.	OV.	OV.	79VDC	6V.A.C	230VDC
4	6SK7	OV.	OV.	OV.	OV.	OV.	79VDC	6V.A.C	230VDC
5	6SK7	OV.	OV.	OV.	OV.	OV.	79VDC	6V.A.C	230VDC
6	6SK7	OV.	OV.	OV.	OV.	OV.	79VDC	6V.A.C	230VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0.0	0.0	0.0	0.0	0.0	175K.0	0.0	165K.0
2	6SK7	0.0	0.0	0.0	0.0	0.0	175K.0	0.0	165K.0
3	6SK7	0.0	0.0	0.0	0.0	0.0	175K.0	0.0	165K.0
4	6SK7	0.0	0.0	0.0	0.0	0.0	175K.0	0.0	165K.0
5	6SK7	0.0	0.0	0.0	0.0	0.0	175K.0	0.0	165K.0
6	6SK7	0.0	0.0	0.0	0.0	0.0	175K.0	0.0	165K.0

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measure-



PHILCO MODEL 46-1201

TRADE NAME Philco Model 46-1201
MANUFACTURER Philco Radio & Television Corp., Tioga & C Sts., Philadelphia, Pa.
TYPE SET AC Combination Auto. Phono. & Superheterodyne Radio - Self Contained Loop Ant.
TUBES (FIVE) Types, 7A8 Converter, 7B7 IF Amp., 7C6 Det.-AVC-AF, 35L6GT Power Output, 50Y6GT Rectifier.

POWER SUPPLY 105-120 Volts AC

RATING - .345 Amps. @ 117V AC

TUNING RANGE-BROADCAST 540-1600KC

SHORT WAVE

ALIGNMENT INSTRUCTIONS

Install chassis in cabinet and connect loop before starting to align. Connect ground lead of signal generator to lug on antenna coil (same lug where antenna coupling capacitor (18) is connected). Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to ext ant. lead. After disconnecting same from ground on chassis.	455KC	Low freq. end of dial. Gang in mesh.	Across voice coil (Lug on speaker to ground)	A1,A2, A3,A4.	Turn A4 down tight then adjust in order (including A4) for maximum output.
"	"	1600KC	1600KC	"	A5	Adjust for maximum output.
"	"	1500KC	1500KC	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		BASE TYPE	INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
1	Converter	7A8	7A8	8U	
2	1F Amp.	7B7	7B7	8V	
3	Det.-AVC-AF	7C6	7C6	8W	
4	Power Output	35L6GT	35L6GT	7AC	
5	Rectifier	50Y6GT	50Y6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PHILCO PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
6	15	30-2559	TC44	M-13-150	UT-161	BR1815 Filter
7	150	30-2559	TC44	M-13-150	UT-161	BR1815 Line Filter
8	40	30-2548	TC48	M-40-150	UT-401	BR4015 Bias Filter
9	150	45-3500-2	TP425	S-6-04	TC-14	D74S4 35L6 Plate Bypass
10	.04	45-3500-3	TP429	S-4-2	TC-2	D74S2 Audio Coupling
11	.03	45-3500-1	TP429	S-6-03	TC-13	D74S3 Shield Isolation
12	.01	400	TP421	S-4-01	TC-11	D74S1 Line Isolating Trap *
13	.01	400	TP421	S-4-01	TC-11	D74S1 Screen bypass
14	.02	400	TP421	S-4-01	TC-11	D74S1 Line Isolating Trap *
15	.05	200	TP429	S-4-05	TC-15	D74S5 Ant. Coupling
16	.2	200	TP429	S-4-2	TC-2	D74P2 AVC Filter
17	.1	200	TP429	S-4-1	TC-1	D74P1 35L6 Grid Bypass
18	.0015	600	TP404	S-6-001	TC-21	684-1 RF Bypass Vol. Cont.
19	240	500	6010245307	MO-5-325	1FM-325	1468-.00025 5W5T1
20	100	500	6010105407	MO-5-31	1FM-31	1469-.0001 5W5T1

* Wind same number of turns on replacement as on original.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
21	1 Meg. 1	33-5519				Volume control & SW - See note.

Note - Item 21 acts as two 500KΩ controls tapered opposite each other from center tap.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		PHILCO PART No.	MALLORY PART No.	IRC PART No.		
22	120KΩ	66-4123340	BTS-120K			Br.-Red-Yl. Osc. Grid - See Note 1
23	47KΩ	63-5473340	BTS-47K			Yl.-Vl.-Or. Screen Dropping
24	10 Meg.	66-6103340	BTS-10 Meg.			Br.-Blk.-Blue 1st AF Grid
25	2.2 Meg.	66-5223340	BTS-2.2 Meg.			Red-Red-Grn. AVC Filter
26	330KΩ	66-4333340	BTS-330K			Or.-Or.-Yl. Series Phono - See Note 2
27	68KΩ	66-4223340	BTS-68K			Blue-Gray-Or. " " " "
28	220KΩ	66-4333340	BTS-220K			Red-Red-Yl. 1st AF Plate Load
29	330KΩ	66-4333340	BTS-330K			Or.-Or.-Yl. Output Grid
30	120KΩ	66-4123340	BTS-120K			Br.-Red-Yl. Bias Voltage Divider
31	1 Meg.	66-5103340	BTS-1 Meg.			Br.-Blk.-Grn. Bias Voltage Divider
32	80K-65Ω	33-3426	ABA-150†			Line Dropping and Surge Limiter
33	120K	66-4123340	BTS-120K			Br.-Red-Yl. Line Isolating - See Note 3

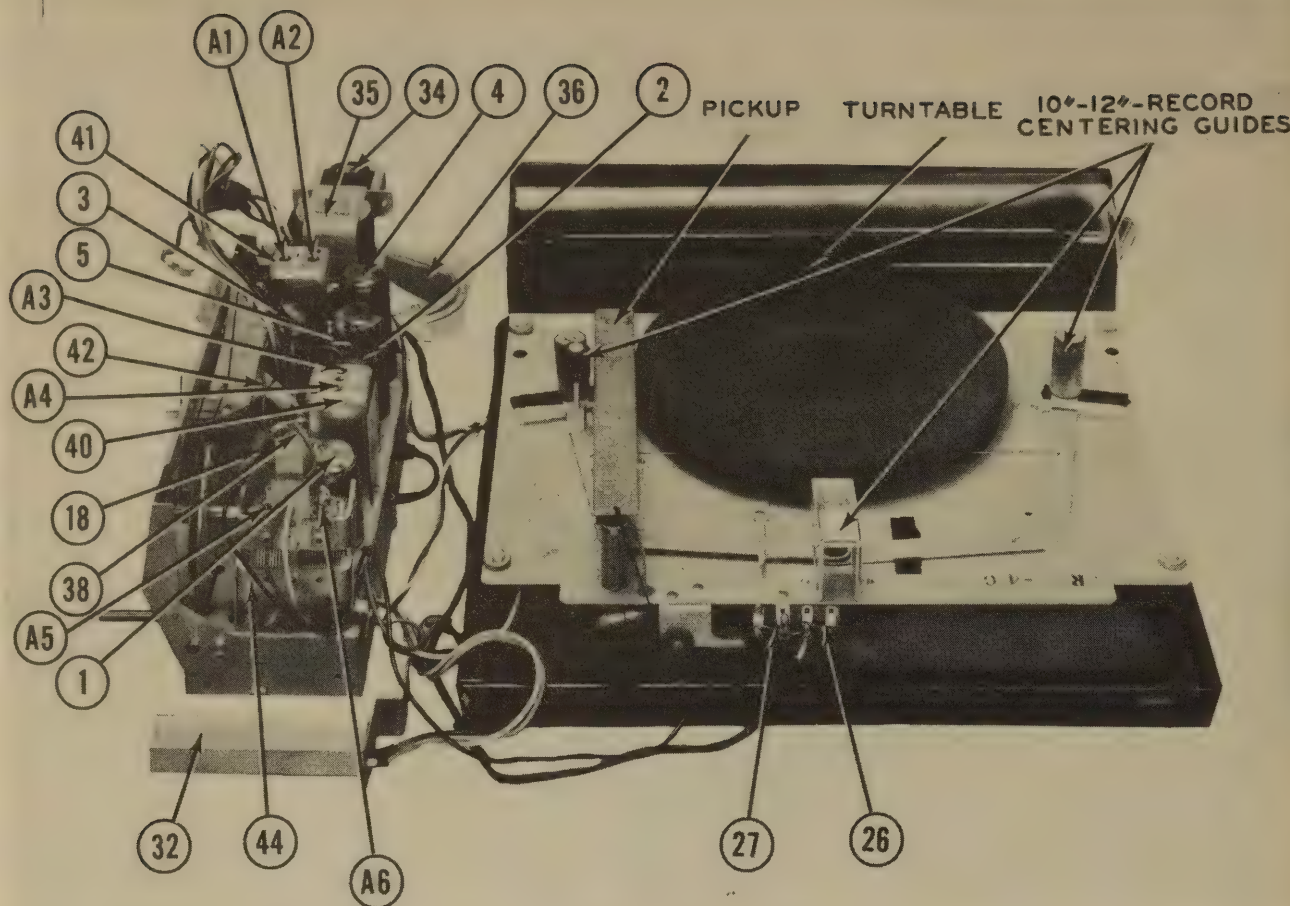
Note 1 - Some models use a 47KΩ resistor in this application. Replacement same as item 23.

Note 2 - Some models use a single 10 Meg.Ω resistor in place of items 26 & 27. Replacement same as item 24.

† Adjust tap to 65Ω from one end.

Note 3 - Not used in all models.

CHASSIS-TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE	PRI. SEC.	DC RES.	SEC.	PHILCO PART No.	STANCOR PART No.	THORNDYKE PART No.	
34	2200Ω	3.3Ω	210Ω	.8Ω	32-8172	A-3876	T-14S82	

SPEAKER

ITEM No.	RATINGS				REPLACEMENT DATA			INSTALLATION NOTES
	FIELD RES.	VC IMP.	PRI. SEC.	SEC.	PHILCO PART No.	JENSEN PART No.		
35	1400Ω	3.3Ω			36-1581			
36	CONC. DIA.	VC DIA.						NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.

R F COILS

ITEM No.	USE	DC RES.				REPLACEMENT DATA			INSTALLATION NOTES
		PRI.	SEC.			PHILCO PART No.	WEISSNER PART No.		
37	Loop Ant.	3.3Ω				76-2127			
38	Ant. Coil	32Ω	.8Ω			32-3394			
39	Osc. "	3Ω	7Ω			32-3562	14-1040		
40	Input IF	25Ω	25Ω			32-3968	16-6658		
41	Output IF	21Ω				32-4005	16-6870		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMP'S.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PHILCO PART No.		
42	Screw	110	0.5		34-2477		Type C7, bulb is frosted.

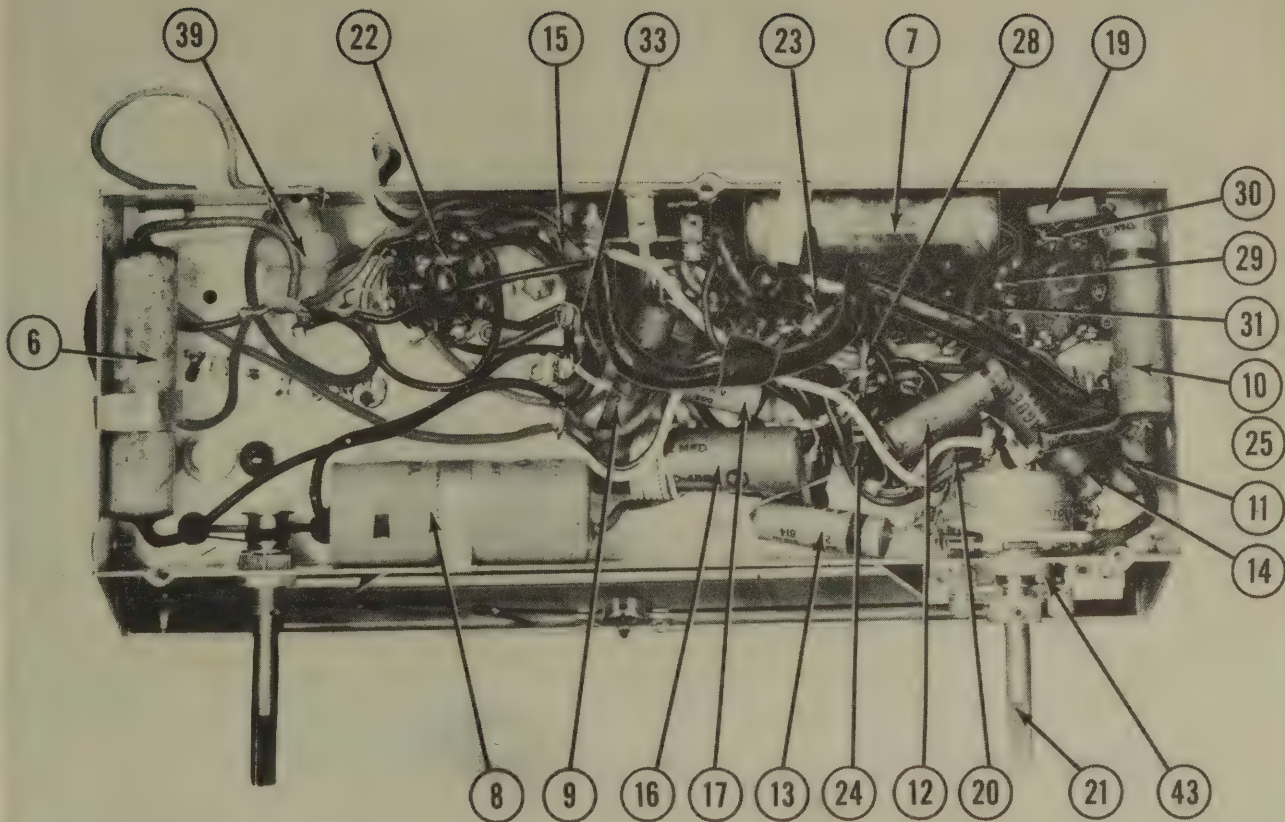
MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
43	Switch	31-2659	Radio Phono DPDT
44	Tuning Cap.	27-5883	2 Gang Variable Cap.
	Dial Scale	54-4255	
	Knob Assy.	56-2076	FCP
	Dial Pointer	78-1642	
	Switch Lever Assy		

DISASSEMBLY INSTRUCTIONS

- 1 - Remove tuning control and volume control push-on type knobs.
- 2 - Remove four wood screws holding chassis board to cabinet.
- 3 - Remove four rubber-cushioned screws holding cover board on bottom of record changer.
- 4 - Remove four clip buttons from cover board.
- 5 - Remove two brackets holding bottom metal retainer of phono player by removing four machine screws and nuts from cabinet.
- 6 - Have phono-radio right side up. Now slide cabinet toward rear holding down the two catches that appear inside the record changer door. The record changer now slides out.
- 7 - Remove four nuts and four washers holding speaker to cabinet. Remove speaker.
- 8 - Remove Phillips head screw holding resistor mounting assembly to cabinet. Remove assembly.
- 9 - Unsolder antenna loop lead from coil. Unsolder the other lead going to tuning gang capacitor.
- 10 - Remove 3 hex screws and lead wire clips from chassis board holding chassis.
- 11 - Remove line cord holder from cabinet by removing Phillips head screw and leather holder.
- 12 - Remove chassis.

CHASSIS—BOTTOM VIEW



OLYMPIC
MODEL 6-606



OLYMPIC MODEL 6-606

OLYMPIC
MODEL 6-606

TRADE NAME	Olympic Model 6-606
MANUFACTURER	Olympic Radio & Television Inc. 510 Avenue of the Americas, New York 11, New York
TYPE SET	AC - DC Battery Portable Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 11N5 RF Amp., 1LA6 Converter, 11N5 IF Amp., 11H4 Det.-AVC-AF, 1LB4 Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC or 90 Volt "B" Battery & 9 Volt "A" Battery
TUNING RANGE—BROADCAST	530-1700KC

ALIGNMENT INSTRUCTIONS

With tuning gang fully closed dial pointer should be adjusted over first thin mark at left end of dial. Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to ant. stator section of tuning gang. Low side to chassis.	455KC	High freq. end of dial.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. IF receiver is powered with AC, use isolation transformer or connect .1 MFD cap. in series with low lead to chassis and decrease dummy ant. to .001 MFD to prevent excessive hum modulation.
50 MMFD	High side to ant. terminal on loop. Low side to chassis.	1500KC	1500KC	"	A5	"
"	"	"	"	"	A6, A7.	"
"	"	600KC	Tune in 600KC signal.	"	A8	Rock dial and adjust for maximum output. Repeat adjustment A5, A6 and A7 at 1500KC and A8 at 600KC

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RNA BASE TYPE	INSTALLATION NOTES
		OLYMPIC PART No.	STANDARD REPLACEMENT		
1	RF Amp.	11N5	11N5	7AO	
2	Converter	11A6	11A6	7AK	
3	IF Amp.	11N5	11N5	7AO	
4	Det.-AVC-AF	11H4	11H4	5AG	
5	Power Output	11B4	11B4	5AD	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		OLYMPIC PART No.	MALLORY PART No.	SOLAR PART No.	AEROVOX PART No.	
7A	80	CO-182	TC474	EL-351	484-1	Filter - Blue
7B	20			UT-201	BRH151	Filament Filter - Yel.
7C	100				DT451	RF Bypass Pwr. Supp.
8	1				DT455	Line Filter Bypass
9	.05				DT3D2	11L4 Plate Bypass
10	.002				DT8S1	Audio Coupling
11	.01				DT8S5	Filament bypass
12	.006				DT4S8	AVC Filter
13	.05				DT4S2	Filament Bypass
14	.02				DT6S1	AVC Filter
15	.01				DT6S1	Ant. Coupling
16	.01				DT6S1	Conv. Screen Bypass
17	.01				DT6S1	Audio Grid Bypass
18	.01				DT6S1	RF Bypass Diode
19	.01				DT6S1	Osc. Grid Capacitor
20	.01				DT6S1	Fixed Trimmer*
21	.01				DT6S1	
22	.01				DT6S1	

*Not used in all models.
*Parallel TC47 with first section of FP to obtain correct capacity.

CONTROLS

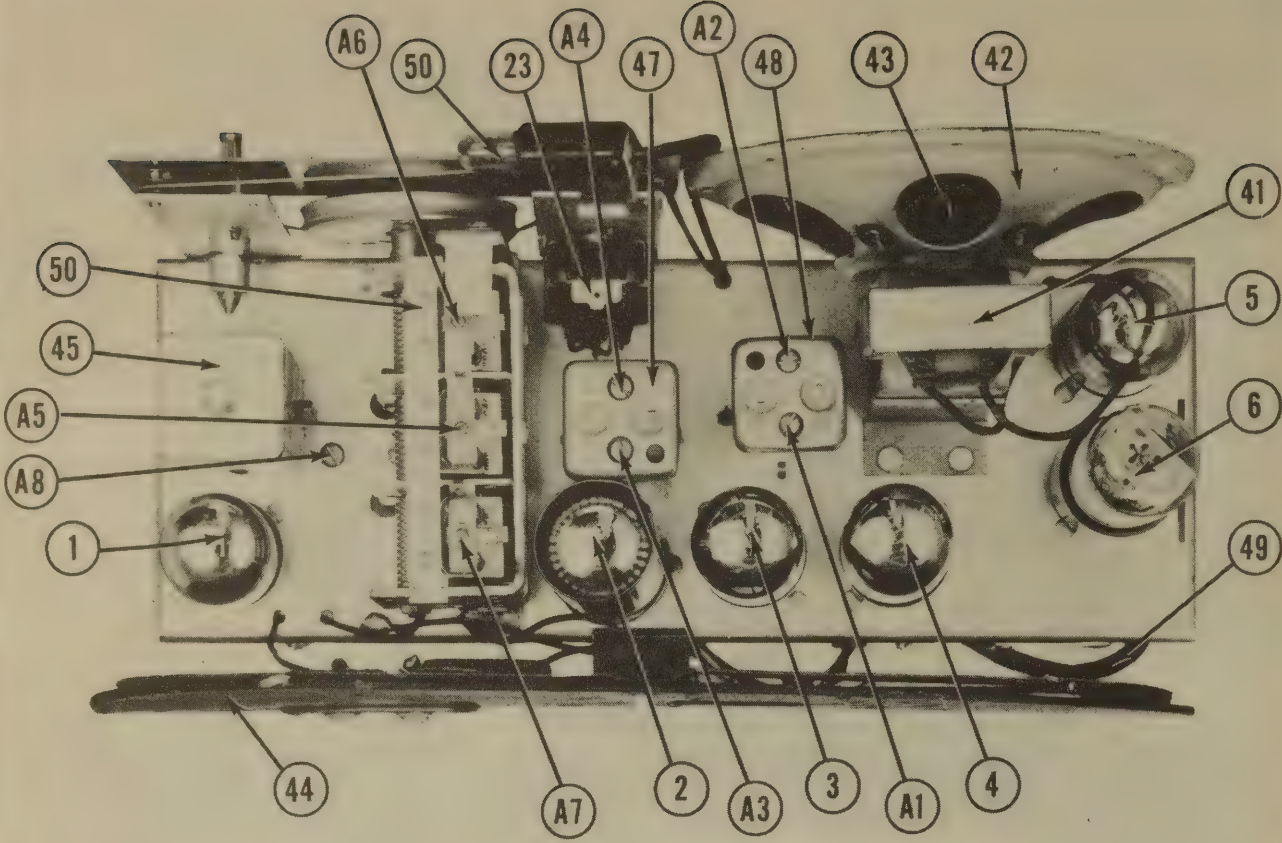
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		OLYMPIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
23A	2 Meg.	PT-383	MK403	D13-139	AM-66-2	Volume Control
23B	1	Not Req.	Not Req.	KSS-3	SW-A2	Attach to 23A per Instructions
23C	Switch		M27	42		

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		OLYMPIC PART No.	MALLORY PART No.	IRC PART No.	IRC PART No.	
24	1 Meg.	REB105N		BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
25	3.3 Meg.	REB335N		BTS-3.3 Meg.	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
26	2.2 Meg.	REB225N		BTS-2.2 Meg.	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
27	220KΩ	REB224M		BTS-220K	BTS-220K	Red-Red-Yl. Osc. Grid
28	1500Ω	REB152M		BTS-1500	BTS-1500	Br.-Grn.-Red Filament Shunt
29	27Ω	REB270K		BW-2-27	BW-2-27	Red-Vl.-Blk. Series Filament
30	68KΩ	REB683K		BTS-68K	BTS-68K	Blue-Gray-Or. Osc. Screen Dropping
31	470KΩ	REB474M		BTS-470K	BTS-470K	Yl.-Vl.-Yl. Diode Load
32	470Ω	REB471L		BTS-470	BTS-470	Yl.-Vl.-Br. Filament Shunt
33	3.8 Meg.	REB385M		BTS-3.8 Meg.	BTS-3.8 Meg.	Blue-Gray-Grn. 1st AF Grid
34	470KΩ	REB474M		BTS-470K	BTS-470K	Yl.-Vl.-Yl. 1st AF Plate Load
35	1 Meg.	REB105M		BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
36	1500Ω	REB152M		BTS-1500	BTS-1500	Br.-Grn.-Red Filament Shunt
37	2600Ω	RE-407		ABA-3000*	ABA-3000*	AC DC Filament Dropping
38	3300Ω	REC332K		BTA-3300	BTA-3300	Or.-Or.-Red Filter
39	27Ω	REB270K		BW-2-27	BW-2-27	Red-Vl.-Blk. Surge Limiter
40	100Ω	REB101L		BW-2-100	BW-2-100	Br.-Blk.-Br. Pilot Light Shunt

*Adjust tap to 260Ω

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING		DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	PRI. SEC.	PRI. SEC.	PRI. SEC.	OLYMPIC PART No.	THORDARN PART No.	
41	8500Ω	3.2Ω	480Ω	.5Ω	SK-156	A-38791 T-145841	Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		OLYMPIC PART No.	JENSEN PART No.	
42	FIELD VC IMP. 3.2Ω	SK-156	ST-1084	Fabricate new mounting bracket.
43	CONE DIA. VC DIA. 4-3/4" 1/2"	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT.		

R F COILS

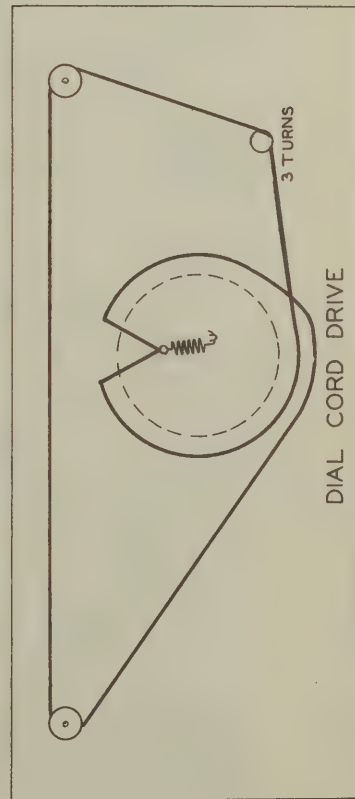
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	OLYMPIC PART No.	MEISSNER PART No.	
44	Loop Ant.	0Ω	1.5Ω	LP178		
45	Rf Coil	105Ω	3.3Ω	CL176	14-1040	
46	Osc. "	4Ω	5.8Ω	CL177	16-6666	
47	Input IF	11.5Ω	11.5Ω	TR186	16-6637	
48	Output IF	11.5Ω	14Ω	TR186		

DIAL LIGHT

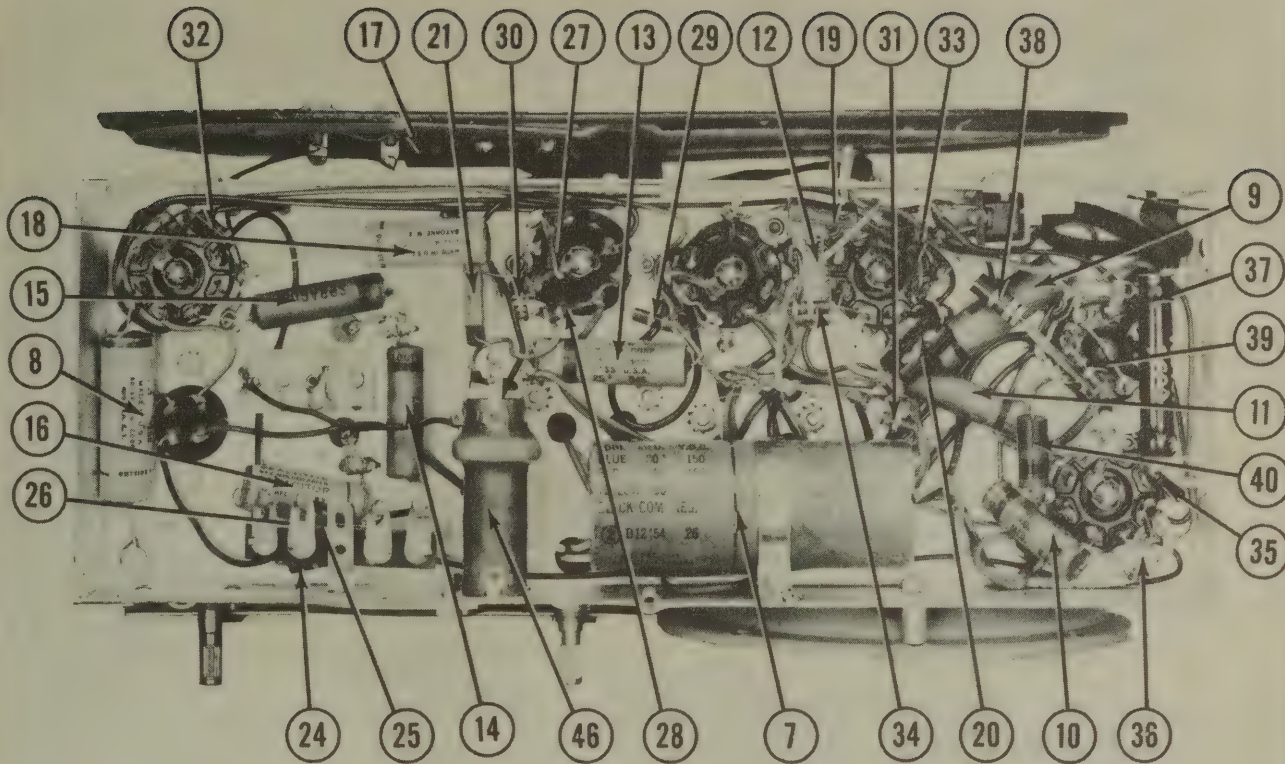
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					OLYMPIC PART No.	BU-187	
49	Bayonet	6-8	0.15	Brown	Type 47		

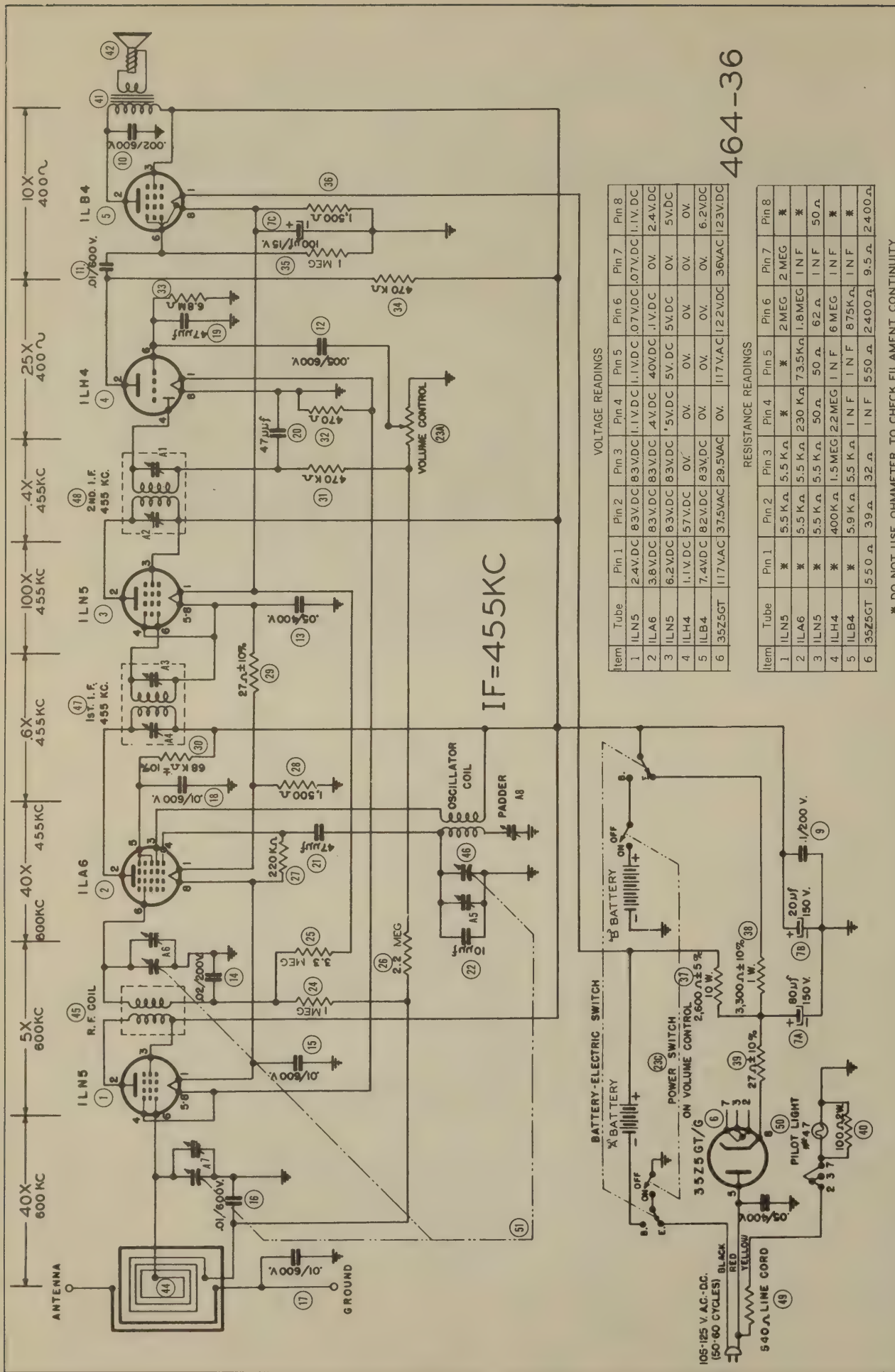
MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
50	Tuning Cap.	CW-146	3 Gang Variable (with pulley)
A8	Padder Cond.	CT-388	Osc. Padder 220-680 MMF
	44V Battery	BT-232	(A) 2 used #746 Eveready or equiv.
	45V	BT-233	(B) 2 " #482
	Cabinet	CA-229	
	Line Cord	LC-315	540Ω Resistance
	Crystal	CR-289	Dial
	Dial Scale	DL-391	metal
	Knob	KN-260	Walnut
	Dial Pointer	PO-365	" with dot
	Switch	SW-185	Power Selector DPDT



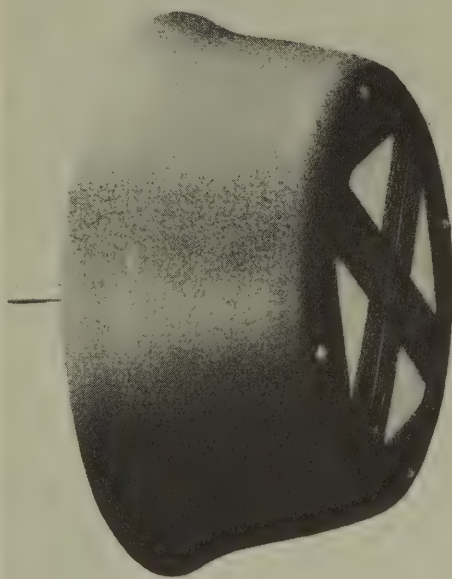
CHASSIS—BOTTOM VIEW





*** DO NOT USE OHMMETER TO CHECK FILAMENT CONTINUITY**

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC
Voltages measured at 1000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Line voltage maintained at 117 volts for voltage readings.
- 5 - Nominal tolerance on component values makes possible a
variation of $\pm 10\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage
measurements.

MOTOROLA
MODEL 505TONE
CONTROL

MOTOROLA MODEL 505

MOTOROLA
MODEL 505

TRADE NAME		Motorola Model 505				
MANUFACTURER		Galvin Mfg. Corp., 4545 Augusta Blvd., Chicago, Ill.				
TYPE SET		Battery Operated Superheterodyne Auto Receiver				
TUBES (SIX)		Types, 6SK7GT RF Amp., 6SA7GT Converter, 6SK7GT IF Amp., 6SQ7GT Det.-AVC-AF, 6V6GT Power Output, 6X5GT Rectifier.				
POWER SUPPLY		6.3 Volts DC		RATING - 8.5 Amps. @ 6.3 V DC		
TUNING RANGE—BROADCAST		535-1600KC		SHORT WAVE		
ALIGNMENT INSTRUCTIONS						
Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to pin #8 (grid) 6SA7. Low side to chassis.	455KC	High freq. end.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output.
60 MMFD and 21" coaxial lead. Capacitor at gen. end.	Antenna receptacle	1600KC	High freq. end cores are to be projecting 1-1/8" from ends of cans and tuning shaft against stop.	"	A5, A6, A7.	" " " "
"	"	1425KC	Exactly one full turn from high freq. end	"	Obs. Core RF " Art. "	Adjust for maximum output. Mark manual tuning shaft coupling to indicate full turn
"	"	Gen. power off but leave connected.	Four more full turns in.	"	A8	Adjust for maximum noise.
			1400KC	"	A7	Install set in car, and connect antenna. Adjust for maximum noise.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7GT	6SK7GT	8N	
2	Converter	6SA7GT	6SA7GT	8AD	
3	LF Amp.	6SK7GT	6SK7GT	8N	
4	Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	6X5GT	6X5GT	6S	024 Type, RMA Base Type 4R, can be used.

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		MOTOROLA PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	30	23A2771B	FP331	DY-2X30-350/50-50	AF44J PRS50-25	UF6B338 ▲ Filter
7B	30					BR202A
8	20					MD16D6
9	.006		OM244	XTM10-.006	1089-.006	Buffer
10	.5	8A19133-B	TP431	S-4-5	484-.5	Hash Filter
11	.5	8A19133-B	TP431	S-4-5	484-.5	"
12	.006	8A12840-A	TP409	S-6-.006	TC-26	6V6 Plate Bypass
13	.004		TP407	S-6-.004	TC-24	Tone Compensation
14	.004		TP424	S-4-.03	TC-13	Audio Coupling
15	.02	8A71911	TP421	S-4-.01	TC-11	Tone Compensation
16	.01	8K23680E	TP421	S-4-.01	TC-11	Plate Bypass
17	.01	8K13166	TP426	S-4-.06	TC-15	Screen Bypass
18	.06	8A14791-A	TP426	S-4-.06	TC-15	AVC Filter
19	.006	8A14791-A	TP409	S-6-.004	TC-26	Ant. Coupling
20	.006	8A14791-A	TP409	S-6-.004	TC-26	AVC Plate Bypass
21	.006	8A14791-A	TP409	S-6-.004	TC-26	AVC Coupling
22	.006	8A14791-A	TP409	S-6-.004	TC-26	Diode Filter
23	.006	8A14791-A	TP409	S-6-.004	TC-26	"
24	.006	8A14791-A	TP409	S-6-.004	TC-26	Fixed Trimmer
25	.006	8A14791-A	TP409	S-6-.004	TC-26	Osc. Grid Cap.
26	.006	8A14791-A	TP409	S-6-.004	TC-26	Ant. Filter
27	.006	8A14791-A	TP409	S-6-.004	TC-26	RF Coupling
28	.006	8A14791-A	TP409	S-6-.004	TC-26	"
29	.006	8A14791-A	TP409	S-6-.004	TC-26	"
30	.006	8A14791-A	TP409	S-6-.004	TC-26	"
31	.006	8A14791-A	TP409	S-6-.004	TC-26	"
32	.006	8A14791-A	TP409	S-6-.004	TC-26	"
33	.006	8A14791-A	TP409	S-6-.004	TC-26	"
34	.006	8A14791-A	TP409	S-6-.004	TC-26	"
35	.006	8A14791-A	TP409	S-6-.004	TC-26	"
36	.006	8A14791-A	TP409	S-6-.004	TC-26	"
37	.006	8A14791-A	TP409	S-6-.004	TC-26	"
38	.006	8A14791-A	TP409	S-6-.004	TC-26	"
39	.006	8A14791-A	TP409	S-6-.004	TC-26	"
40	.006	8A14791-A	TP409	S-6-.004	TC-26	"
41	.006	8A14791-A	TP409	S-6-.004	TC-26	"
42	.006	8A14791-A	TP409	S-6-.004	TC-26	"
43	.006	8A14791-A	TP409	S-6-.004	TC-26	"
44	.006	8A14791-A	TP409	S-6-.004	TC-26	"
45	.006	8A14791-A	TP409	S-6-.004	TC-26	"

CONTROLS

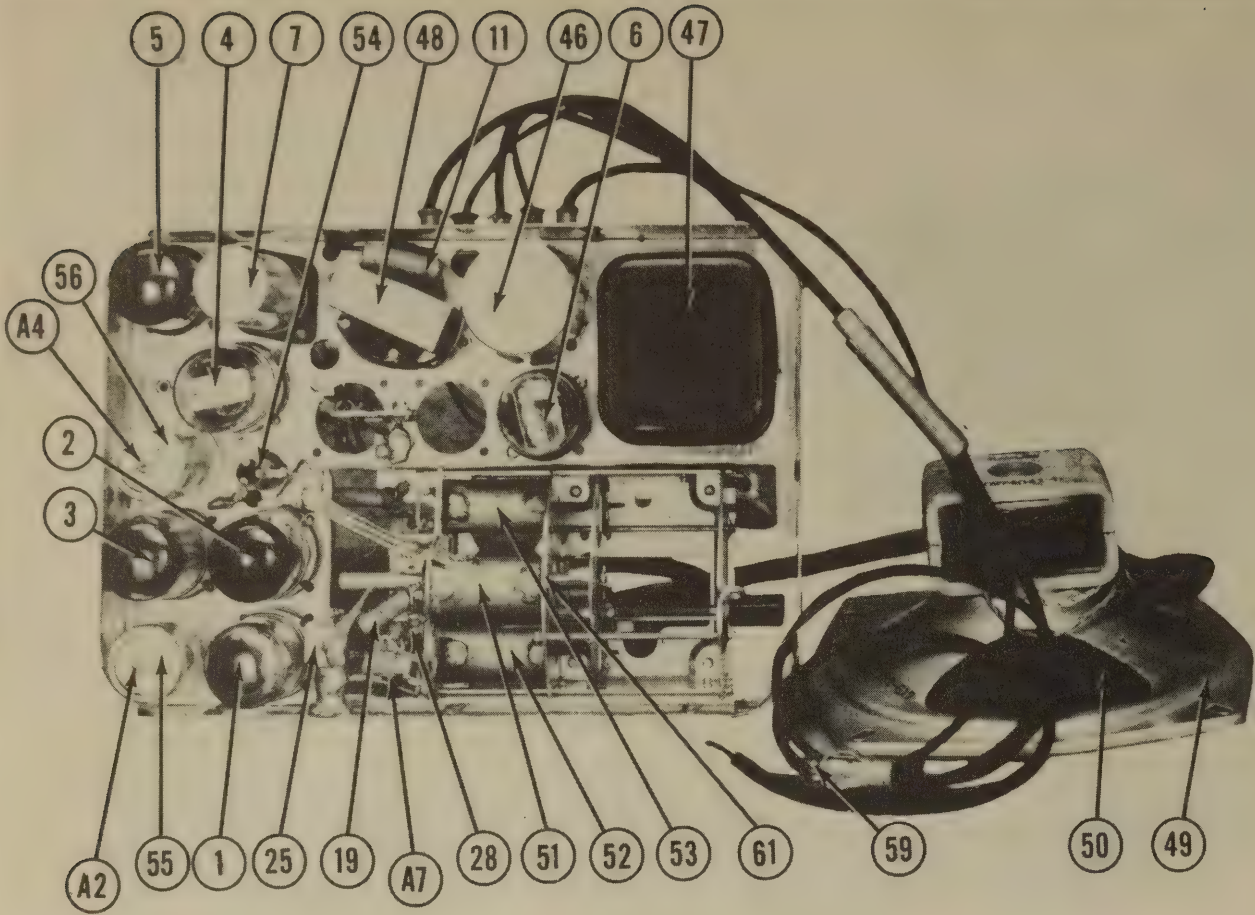
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MOTOROLA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
27A	500KΩ	18A71925-0	TM233	D18-133X		Volume Control
B	Switch	"	SS19	"	"	Attach to 27A per instructions
C	Switch	"	M25	"	"	"

*Use IRC "A" shaft and "C3" coupler with part of original shaft and square hole insulated coupler.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES
		MOTOROLA PART No.	IRC PART No.	
28	470KΩ		BTS-470K	V1.-V1.-V1. AVC Network
29	100KΩ		BTS-100K	Br.-Blk.-Yl. Converter Grid & AVC
30	47KΩ		BTS-47K	V1.-V1.-Or. Osc. Grid
31	22KΩ		BTA-22K	Red-Red-Or. Screen Dropping
32	22KΩ		BTA-22K	Red-Red-Or. Screen Dropping
33	33KΩ		BTA-33K	Or.-Or.-Br. Plate Filter
34	22KΩ		BTS-22K	Red-Red-Or. Tone Compensation
35	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
36	47KΩ		BTS-47K	V1.-V1.-Or. Diode Load
37	4.7 Meg.		BTS-4.7 Meg.	V1.-V1.-Grn. 1st AF Grid
38	470KΩ		BTS-470K	Yl.-V1.-Yl. 1st AF Plate Load
39	220KΩ		BTS-220K	Red-Red-Yl. Output Grid
40	1 Meg.		BTS-1 Meg.	Br.-Blk.-Grn. Diode Load
41	180Ω		BW-1-180	Br.-Gray-Br. Voltage Divider
42	47Ω		BW-2-47	Yl.-V1.-Blk.
43	1000Ω		BTA-1000	Br.-Blk.-Red Filter
44	50Ω		BW-1-47	Grn.-Blk.-Blk. Hash Suppression
45	50Ω		BW-1-47	"

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQ.	REPLACEMENT DATA			INSTALLATION NOTES
				MOTOROLA PART No.	MALLORY PART No.	RADIART PART No.	
46	Interrupter	6.3	115V	3333	85.9	5342M	

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	
47	5.0VDC @ 2.1A each section	600VCT @ .050A			25B70950B	P-4062 T-14R351	Drill 4 new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	PRI.	SEC.	MOTOROLA PART No.	STANCOR PART No.	
48	6450Ω	4Ω	370Ω	.6Ω	25B70171-E	A-3879 T-13537	

SPEAKER

ITEM No.	RATINGS				REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC IMP.	PRI.	SEC.	MOTOROLA PART No.	JENSEN PART No.	
49	4.25Ω	4Ω			50B74041-0	ST-432	
50	6-1/16"	11/16"			NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	MOTOROLA PART No.	WEISSNER PART No.	
51	Ant. Co11		12.8Ω			Items 51, 52, 53, ganged slug tuned
52	RF "		12.2Ω			
53	Osc. "		1.8Ω			
54	" Pad Co11	2Ω				
55	Input IF	16Ω	14.9Ω		16-8666	
56	Output "	15.5Ω	16.2Ω		16-8667	
57	V1b-RF Choke	Ω				
58	Bat "					

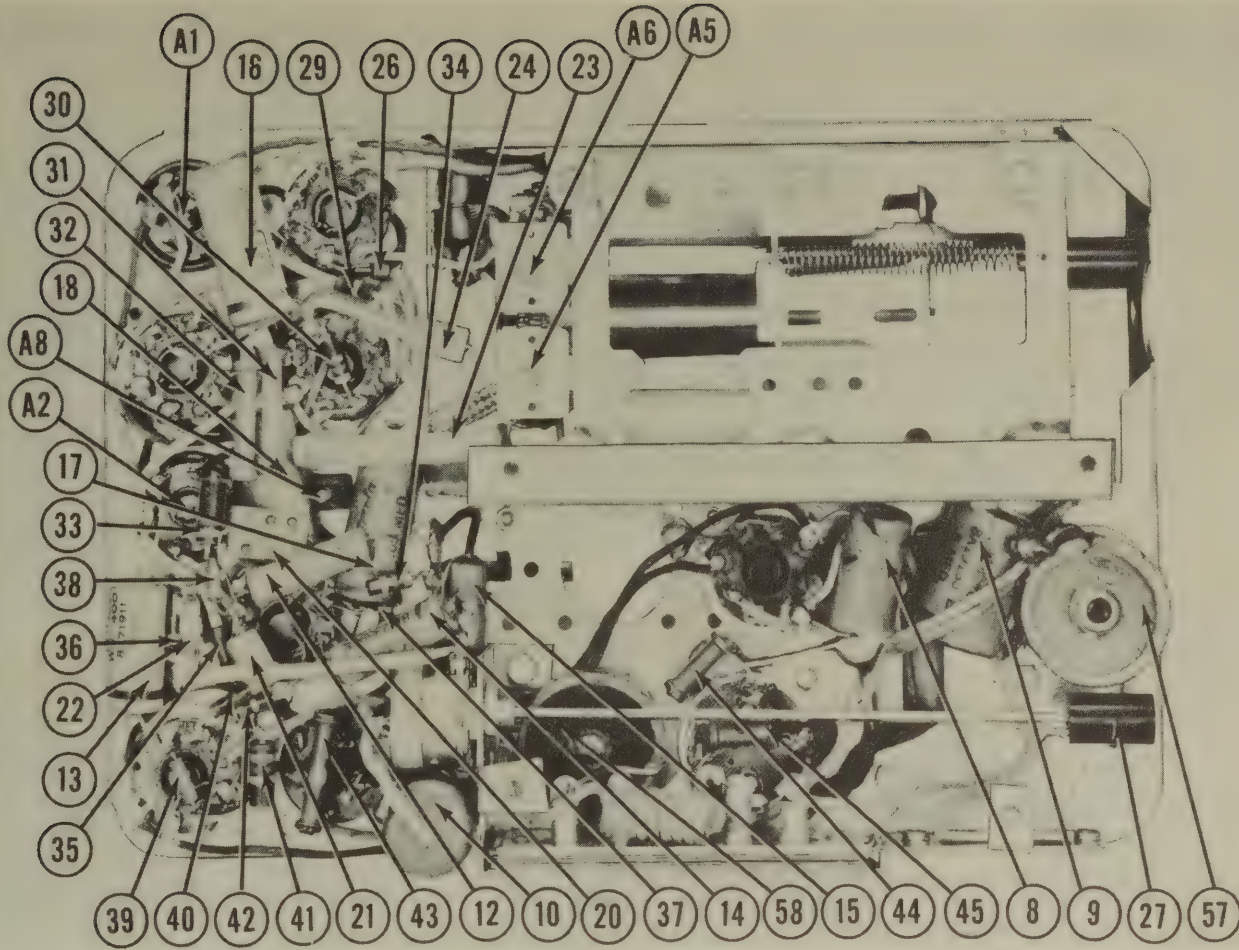
DIAL LIGHT

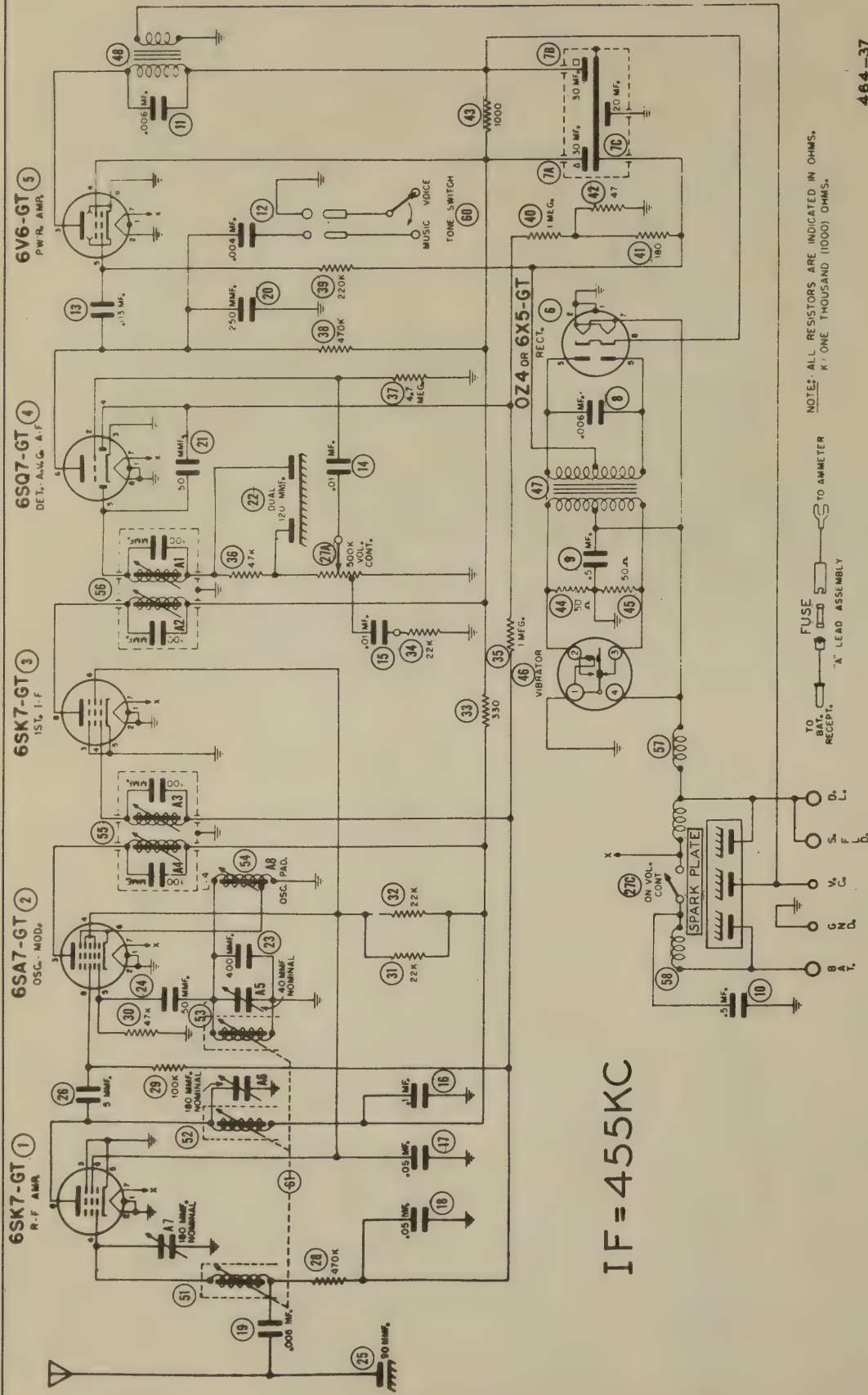
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	MOTOROLA PART No.	
59	Bayonet	6-8	0.15	Brown		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
60	Tone switch		
61	Tuning Assbly.	DPST	

CHASSIS—BOTTOM VIEW





IF = 455KC

NOTE: ALL RESISTORS ARE INDICATED IN OHMS.
K: ONE THOUSAND (1000) OHMS.

FUSE TO BATT. RECEPT. "A" LEAD ASSEMBLY TO AMMETER

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	OV.	OV.	OV.	OV.	OV.	90V.DC	6V.DC	220V.DC
2	6SA7GT	OV.	OV.	220V.DC	90V.DC	OV.	OV.	6V.DC	OV.
3	6SK7GT	OV.	OV.	OV.	OV.	OV.	90V.DC	6V.DC	225V.DC
4	6SQ7GT	OV.	OV.	OV.	OV.	OV.	OV.	6V.DC	OV.
5	6V6GT	OV.	OV.	OV.	OV.	OV.	OV.	6V.DC	OV.
6	6X5GT	OV.	OV.	OV.	OV.	OV.	OV.	6V.DC	250V.DC

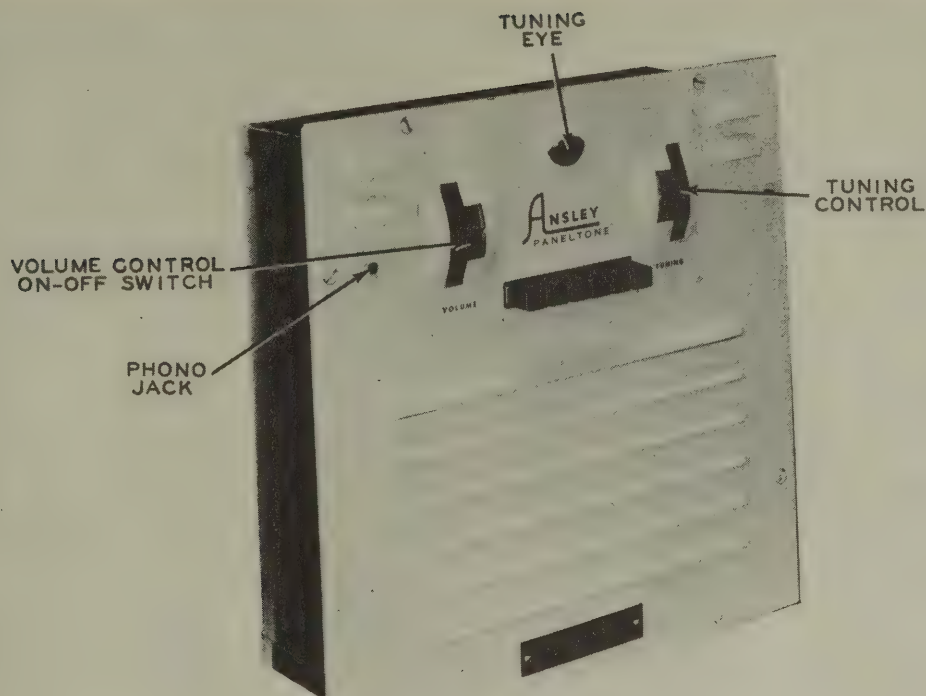
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7GT	0Ω	0Ω	0Ω	0Ω	0Ω	250 KΩ	25Ω	250 KΩ
2	6SA7GT	0Ω	0Ω	0Ω	0Ω	0Ω	250 KΩ	25Ω	250 KΩ
3	6SK7GT	0Ω	0Ω	0Ω	0Ω	0Ω	250 KΩ	25Ω	250 KΩ
4	6SQ7GT	0Ω	0Ω	0Ω	0Ω	0Ω	250 KΩ	25Ω	250 KΩ
5	6V6GT	220Ω	220Ω	220Ω	220Ω	220Ω	250 KΩ	25Ω	250 KΩ
6	6X5GT	0Ω	0Ω	0Ω	0Ω	0Ω	250 KΩ	25Ω	250 KΩ

At the request of the manufacturer reference stage gain measurements are not included.

- 1 - DC Voltage measurements are at 20,000 ohms per volt.
- 2 - Socket connections are shown as bottom views.
- 3 - Measured values are from socket pin to common negative.
- 4 - Battery voltage maintained at 6.3 volts DC for voltage readings.
- 5 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.

ANSLEY
MODEL 41 (PANELTONE)



ANSLEY
MODEL 41 (PANELTONE)

ANSLEY MODEL 41 (PANELTONE)

TRADE NAME Ansley Model 41 (Paneltone) MANUFACTURER Ansley Radio Corp., 41 St. Joes Ave., Trenton, N.J. TYPE SET AC Operated Superheterodyne Receiver TUBES (SEVEN) Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7GT Det.-AVC-AF, 6U5/6G5 Tuning Eye, 6V6GT Power Output, 5Y3GT Rectifier. POWER SUPPLY 110-120 Volts AC RATING - .305 Amps. @ 117V AC TUNING RANGE—BROADCAST 540-1730						
ALIGNMENT INSTRUCTIONS						
Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD	High side to RF stator section of tuning gang. Low side to chassis.	456KC	High freq. end of dial.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output.
200 MMFD	High side to ant. lead. Low side to chassis.	1600KC	1600KC	"	A5	" " " "
"	"	1400KC	Tune in 1400 KC signal.	"	A6,A7.	" " " "
"	"	600KC	Tune in 600KC signal.	"	A8	Rock rotor and adjust for maximum output.
						Repeat adjustments A5, A6, A7 and A8 as given until no further improvement in output can be obtained.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		BMA TYPE	INSTALLATION NOTES
		ANSLEY PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8N	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
5	Tuning Eye	6U5/6G5	6U5/6G5	6R	
6	Power Output	6V6GT	6V6GT	7AC	
7	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		ANSLEY PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
8A	20	CE-1	FP234	DY-2X20-450	EL-220	AF44J
9	450	CE-2	TC-35	M-25-50	TA-525	BR255
10	50	CE-2	TC-35	M-25-50	TA-525	BR255
11	50	CP-6	TP426	S-4-05	TC-15	484-05
12	400	CP-3	TP421	S-4-01	TC-11	484-01
13	.01	CP-3	TP421	S-4-01	TC-11	484-01
14	.05	CP-3	TP426	S-4-05	TC-15	484-05
15	.05	CP-6	TP426	S-4-05	TC-15	484-05
16	.05	CP-6	TP426	S-4-05	TC-15	484-05
17	.05	CP-6	TP426	S-4-05	TC-15	484-05
18	.05	CP-3	TP426	S-4-05	TC-15	484-05
19	.05	CP-3	TP426	S-4-05	TC-15	484-05
20	.05	CP-4	TP423	S-4-02	TC-12	484-02
21	.02	CP-4	TP423	S-4-02	TC-12	484-02
22	500	CM-1	MC225	M-5-45	LFM-45	1468-00005
23	100	CM-4	MC235	M-5-31	LFM-31	1468-0001
24	100	CM-4	MC235	M-5-31	LFM-31	1468-0001
25	100	CM-4	MC235	M-5-31	LFM-31	1468-0001
26	50	CM-1	MC225	M-5-45	LFM-45	1468-00005

CONTROLS

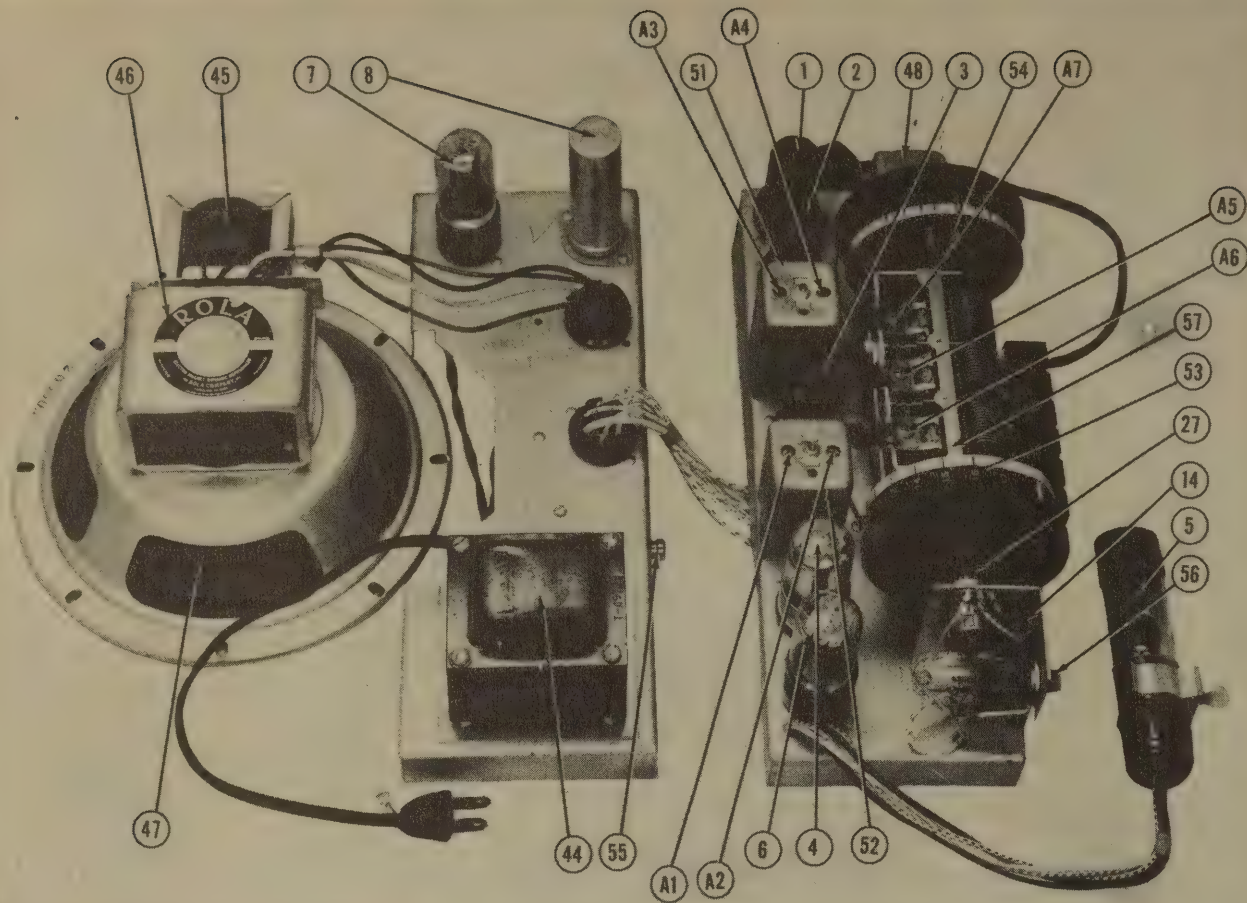
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		ANSLEY PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
27A	500KΩ	1	QC-45			Volume Control & Switch
27B	1 Meg.	1	RP-4			

Used in later production.
*Used in early production.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		ANSLEY PART No.	MALLORY PART No.	IRC PART No.	IRC PART No.	
28	240KΩ	RM-3			BTS-220K	Red-YL-YL. AVC Network
29	330KΩ	RM-10			BM-2-330	Or.-Or.-Br. RF Cathode
30	10KΩ	RM-13			BT-10K	Br.-Blk.-Or. RF Coil Shunt
31	20KΩ	RM-7			BTS-22K	Red-Blk.-Or. Osc. Grid
32	1000Ω	RM-9			BT-1000	Br.-Blk.-Red Conv. Plate Filter
33	330Ω	RM-10			BM-2-330	Or.-Or.-Br. IF Cathode
34	1 Meg.	RM-1			BTS-1 Meg.	Br.-Blk.-Jrn. AVC Diode Load
35	51KΩ	RM-14			BTS-47K	Grn.-Br.-Or. IF Filter
36	240KΩ	RM-3			BTS-220K	Red-YL-YL. Diode Load
37	10KΩ	RM-13			BT-10K	Br.-Blk.-Or. 1st AF Cathode
38	240KΩ	RM-3			BTS-220K	Red-YL-YL. 1st AF Plate Load
39	1 Meg.	RM-1			BTS-1 Meg.	Br.-Blk.-Grn. Tuning Eye Plate Load
40	510KΩ	RM-12			BT-470K	Grn.-Br.-YL. Output Grid
41	500Ω	RM-18			AB-600	Output Cathode
42	7000Ω	RM-10			AB-7000	Plate Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	ANSLEY PART No.	THORDASON PART No.	
44	117VAC @ .305A	730 VCT @ 1.8A	6.5 VAC @ 3.0A	TP-2	P-601211	11Drill new mounting holes. 4Remove plate over chassis cutout and mount transformer

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	SEC.	ANSLEY PART No.	THORDASON PART No.	
45	4200Ω	3.9Ω	1.25Ω	T0-2	A-3877**	**Speaker has provisions for mounting larger transformer

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC IMP.	ANSLEY PART No.	JENSEN PART No.	
46	1000Ω	3.9Ω	Q5-3	ST-439	
47	ONE DIA.	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	ANSLEY PART No.	MEISSNER PART No.	
48	Ant. Coil	Q2	8Ω	LA-1	14-7413	
49	RF Coil	60Ω	8Ω	LR-1		
50	Osc. Coil	5Ω	LO-3		14-1040	
51	Input IF	13Ω	13Ω	T1-1	16-6658	
52	Output IF	13Ω	13Ω	T1-1	16-6660	

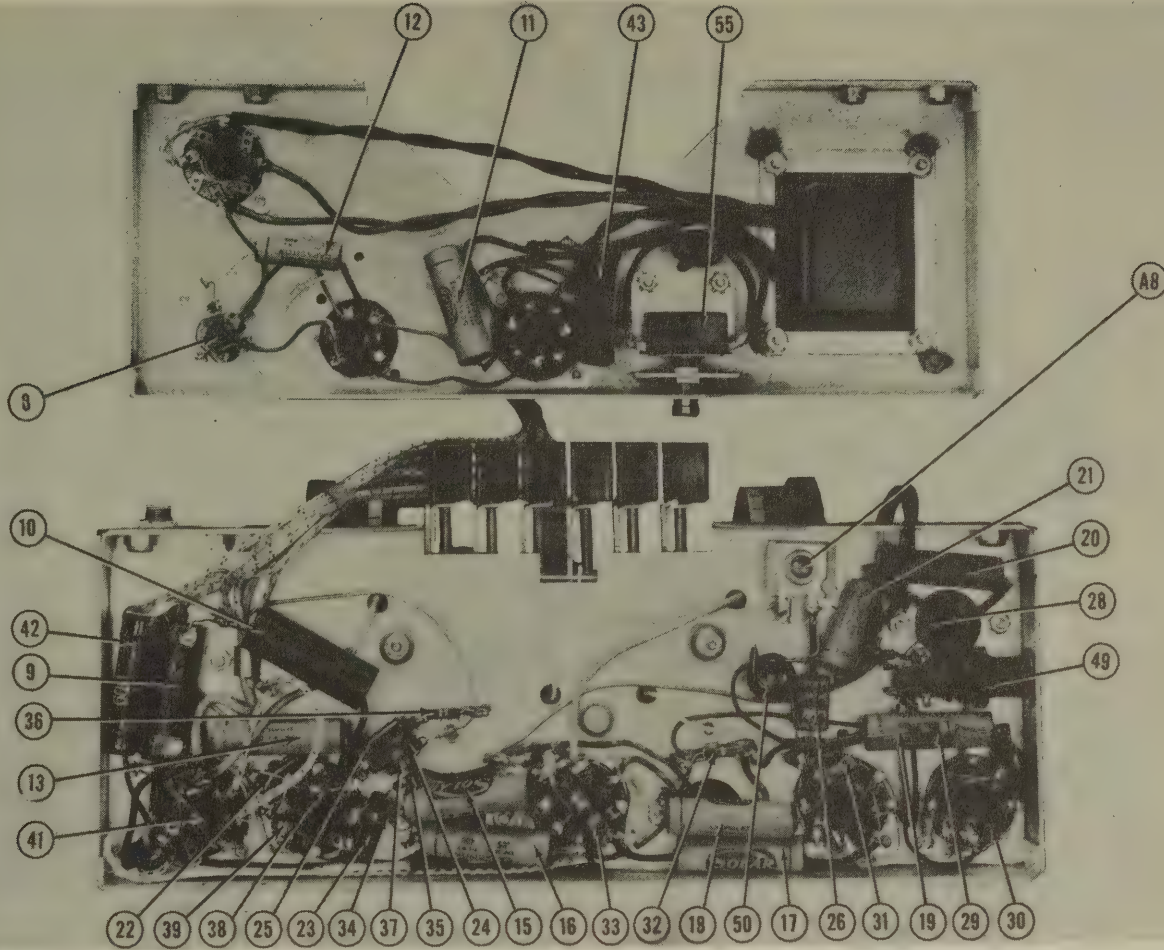
DIAL LIGHT

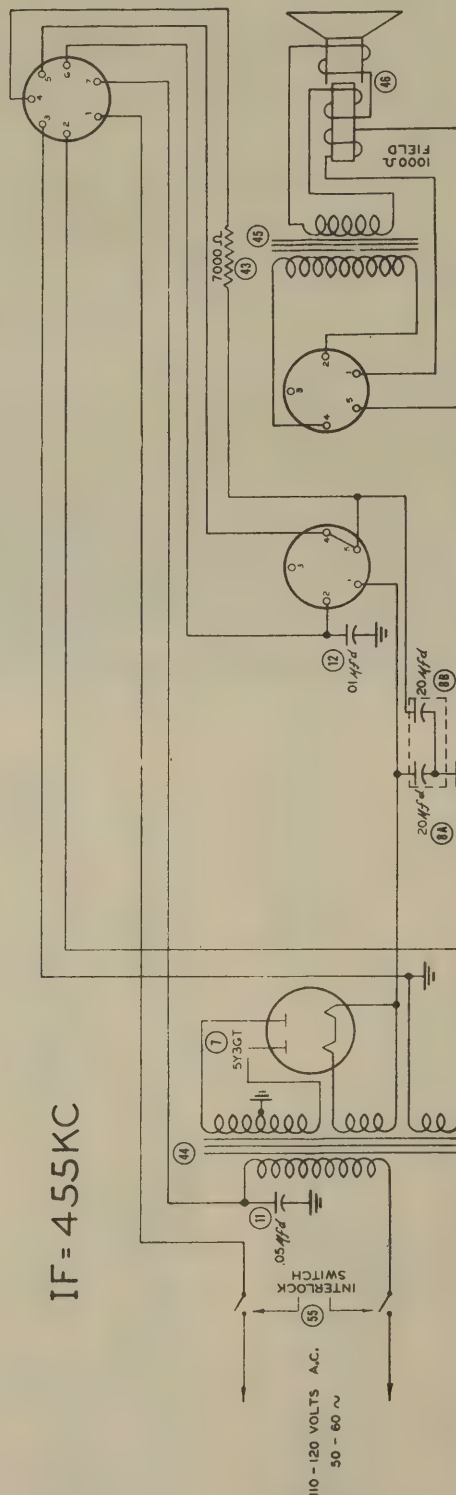
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	ANSLEY PART No.	
53	Bayonet	6-8	0.15	Brown		Type 47
54		6-8	0.15			"

MISCELLANEOUS

ITEM No.	PART NAME	ANSLEY PART No.	NOTES
55	Switch	SP-1	Interlock
56	Phono-Jack	J-1	
57	Tuning Cap.		3 Gang Variable Cap.
A8	Padder	CT-3	Oscillator 400-1000 MF

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

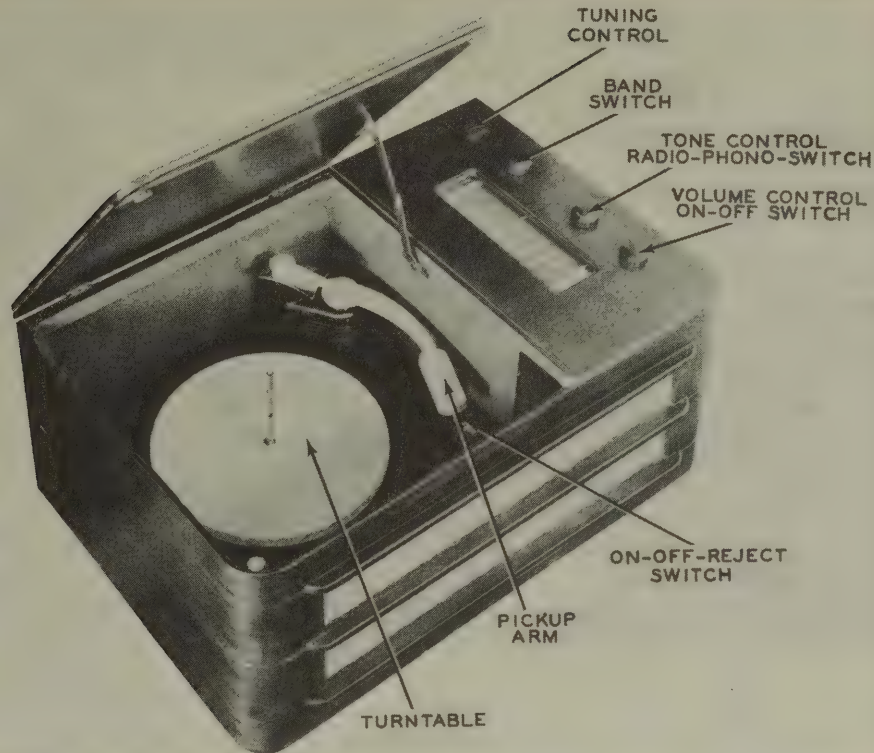
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	OV.	6.5VAC	1.6VDC	-5.0VDC	16.6VDC	14.0VDC	OV.	115.5VDC
2	85A7	OV.	6.5VAC	90VDC	12.5VDC	-4.5VDC	OV.	8.6VDC	OV.
3	6SK7	OV.	6.5VAC	1.8VDC	-4.5VDC	1.6VDC	14.0VDC	OV.	103VDC
4	6SQ7GT	OV.	3.0VDC	-2VDC	0.2VDC	250VDC	6.5VAC	OV.	OV.
5	6VGT	OV.	6.5VAC	310VDC	325VDC	OV.	38VAC	OV.	22VDC
6	5VGT	OV.	4.0VDC	OV.	35VAC	OV.	38VAC	OV.	45VDC

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias is substituted for measurement.

RESISTANCE READINGS

RESISTANCE READINGS									
	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
1	0.2	0.2	300 Ω	2.6 MEG	300 Ω	332 Ω	0.0	332 Ω	0.0
2	0.2	0.2	333 Ω	333 Ω	21K Ω	.75 Ω	0.0	2.2 MEG	0.0
3	0.2	0.2	300 Ω	2.2 MEG	300 Ω	332 Ω	0.0	3.32 K Ω	0.0
4	490 Ω	0.2	9.5K Ω	1.1 MEG	230K Ω	565 Ω	.12 Ω	0.0	0.0
5	0.2	0.2	325 Ω	325 Ω	520K Ω	1.0 Ω	0.0	800 Ω	0.0
6	0.2	0.2	325 Ω	325 Ω	520K Ω	1.0 Ω	0.0	800 Ω	0.0
7	0.2	0.2	325 Ω	325 Ω	520K Ω	1.0 Ω	0.0	800 Ω	0.0
8	0.2	0.2	325 Ω	325 Ω	520K Ω	1.0 Ω	0.0	800 Ω	0.0
9	0.2	0.2	325 Ω	325 Ω	520K Ω	1.0 Ω	0.0	800 Ω	0.0

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



TRUETONE MODEL D2645

TRADE NAME	Truetone Model D2645		
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.		
TYPE SET	AC Combination Automatic Phono. - 2 Band Superheterodyne Receiver - Self Contained Loop Antenna		
TUBES (SIX)	Types, 6SA7 Mixer, 6SK7 1st IF Amp., 6SF7 2nd IF-Det-AVC, 6SJ7 1st AF, 6V6GT Power Output, 6X5GT Rectifier.		
POWER SUPPLY	105-125 Volts AC	RATING -	.370 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1600KC	SHORT WAVE	9-15.6MC

ALIGNMENT INSTRUCTIONS

To set pointer, tune in 1400KC signal for maximum output. Attach pointer to drive cord at 1400KC mark on the dial scale. Volume control at maximum volume and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1	High side to pin #8 of 6SA7. Low side to chassis.	455KC	BC	High freq. end of dial. (Gang fully open)	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
100 MMF	High side to ant lead. Low side to chassis.	1620KC	"	"	"	A5	" " " " "
"	"	1400KC	"	Tune to maximum output.	"	A6	" " " " "
"	"	300KC	"	"	"	A7	Rock dial and adjust for maximum output. Recheck A5 at 1620KC and A6 at 1400KC
400Ω	"	15.6 MC	SW	High freq. end of dial. (Gang fully open)	"	A8	adjust for maximum output
"	"	14 MC	"	Tune to maximum output.	"	A9	Rock dial and adjust for maximum output.
100 MMF	"	1400KC	BC	"	"	A6	After chassis is reassembled in cabinet, adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT		
1	Mixer	6Sx7	6Sx7	8R	
2	1st IF amp.	6XK7	6SK7	8N	
3	2nd IF-Det.-AVC	6Sx7	6SK7	7A4	
4	1st AF	6Sx7	6XJ7	6N	
5	Power output	6X6GT	6X6GT	71C	
6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		TRUETONE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7A	450	45X346	FP346	DY-2X40-450/20-25	EL-330	Filter
7B	40					
7C	20					
8	.004	F63402	TP407	S-6-004	TC-24	68x-004
9	.004	D63103	TP421	S-4-01	TC-11	434-01
10	.004	D63402	TP407	S-6-004	TC-24	434-004
11	.005	D64253	TP431			464-025
12	.1	D6104	TP428	S-4-1	TC-1	434-1
13	.005	D6502	TP404	S-6-005	TC-25	DT6L5
14	.04	D69403	TP425	S-6-04	TC-14	434-04
15	.05	D66403	TP425	S-6-05	TC-15	434-05
16	.04	D66403	TP425	S-6-04	TC-14	434-04
17	.04	D66403	TP425	S-6-04	TC-14	434-04
18	.005	D63501	TP403	S-6-005	TC-35	168-005
19	470	500	47X505	MO-5-35	1FX-35	1438-005
20	1.0	500	47X476	MO-5-31	1FX-31	1438-001
21	.68	500	47X471	MO-5-47	MS-47	1469-00007
22	47	500	47X463	MO-5-45	1FX-45	1468-00005
23	47	500	47X463	MO-5-45	1FX-45	1468-00005
24	68	500	47X469	MO-5-47	MS-47	1469-00007
25	286	500	47X481			5R5x3
26	40	500	47X472	MO-5-44	MS-44	1439-00004
27	330	500	47X474	MO-5-45	MS-45	1439-00005
28	47	500	47X473	MO-5-33	MS-33	1438-00003
29	270	500	47X445			5WxT3

CONTROLS

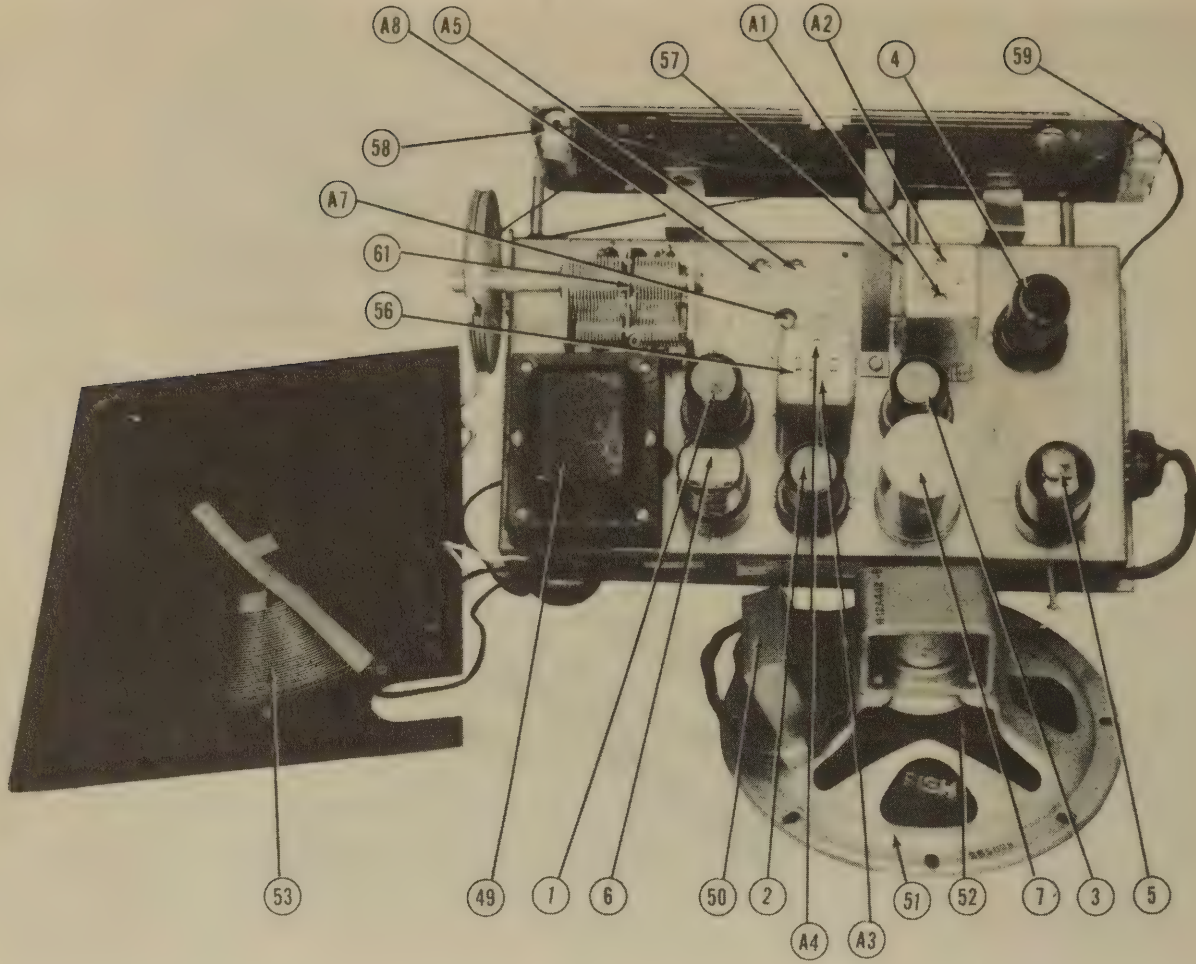
ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
30A	500KΩ	33X358	TM227	D13-133X	AT-92*	Volume Control
30B	Switch	Not Req.	SS25	E	KSS-3	Attach to 30A per instructions
30C	3 Meg.	Not Req.	M26	41	SW-4	"
31A	3 Meg.	40X276				Tone Control
31B	3 Meg.	Not Req.				"
31C	3 Meg.	40X281	Ux165	D13-140	AM-67-2	Tone Control-see Note 1
31D	3 Meg.	Not Req.	SS25	E	KSS-3	Attach to 31C per instructions

*Use 100KΩ tap, cut other tap off.
Note 1 - Attach original arm to tone control shaft to actuate radio-phonograph switch.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
32	2.2 Meg.	B65225		BTS-2.2 Meg		Red-Red-Grn. Converter Grid
33	33KΩ	C43393		BTA-33K		Or.-White-Or. Mixer Screen Dropping
34	33KΩ	B64393		BTS-33K		Or.-White-Or. Osc. Grid
35	33KΩ	C54393		BTA-33K		Or.-White-Or. IF Screen Dropping
36	2200Ω	B64222		BTS-2200		Red-Red-Red IF Plate Load
37	1 Meg.	B64105		BTS-1 Meg.		Br.-Blk.-Grn. IF Grid
38	2.2 Meg.	B65225		BTS-2.2 Meg		Red-Red-Grn. AVC Network
39	47KΩ	B6473		BTS-47K		Yl.-Vl.-Or. IF Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (CONTINUED)

40	15KΩ	B84153	BTS-15K	Br.-Grn.-Or. Tone Compensation
41	10 Meg.	B85108	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
42	470KΩ	B85474	BTS-470K	Yl.-Yl.-Yl. 1st AF Screen Dropping
43	33KΩ	B84333	BTS-33K	Or.-Or.-Or. 1st AF Plate Load
44	82KΩ	B84823	BTS-82K	Gr.-Y-Red-Or. 1st AF Plate Filter
45	470KΩ	B85474	BTS-470K	Yl.-Yl.-Yl. Output Grid
46	270Ω	C84271	BW-1-270	Red-Vl.-br. Output Cathode
47	2Ω	43X213	BW-2-2.2	Series Pilot Light
48	1800Ω	D84182	BT-2-1800	Br.-Gray-Red Filter

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	TRUE-TONE PART No.	STANCOR PART No.	
49	117V AC ⑤ .570A	485V CT ⑤ .35VAC ⑤ 2.5h.	SEC. 3	53X282	THORDASON PART No.	

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	SEC.	TRUE-TONE PART No.	THORDASON PART No.	
50	6300Ω	3.4Ω	1.25Ω	Part of 12A442	A-3849 T-135371	1Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	TRUE-TONE PART No.	JENSEN PART No.	
51	PI	3.4Ω	12A442	ST-108	
52	6"	11/16"	NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRUE-TONE PART No.	MEISSNER PART No.	
53	"B" Loop Ant	5Ω	3Ω	9A181	14-1044	Items 55a, 55b wound on same form
54	"D" Ant. Coil	1Ω	0Ω	9A1812		
55a	"B" Osc.	1Ω	2Ω	9A1813		
56	Input IF	22Ω	20.5Ω	9A1813	18-6858	
57	Output IF	19.8Ω	18.2Ω	9A1814 9A1815	18-6859 18-6860	

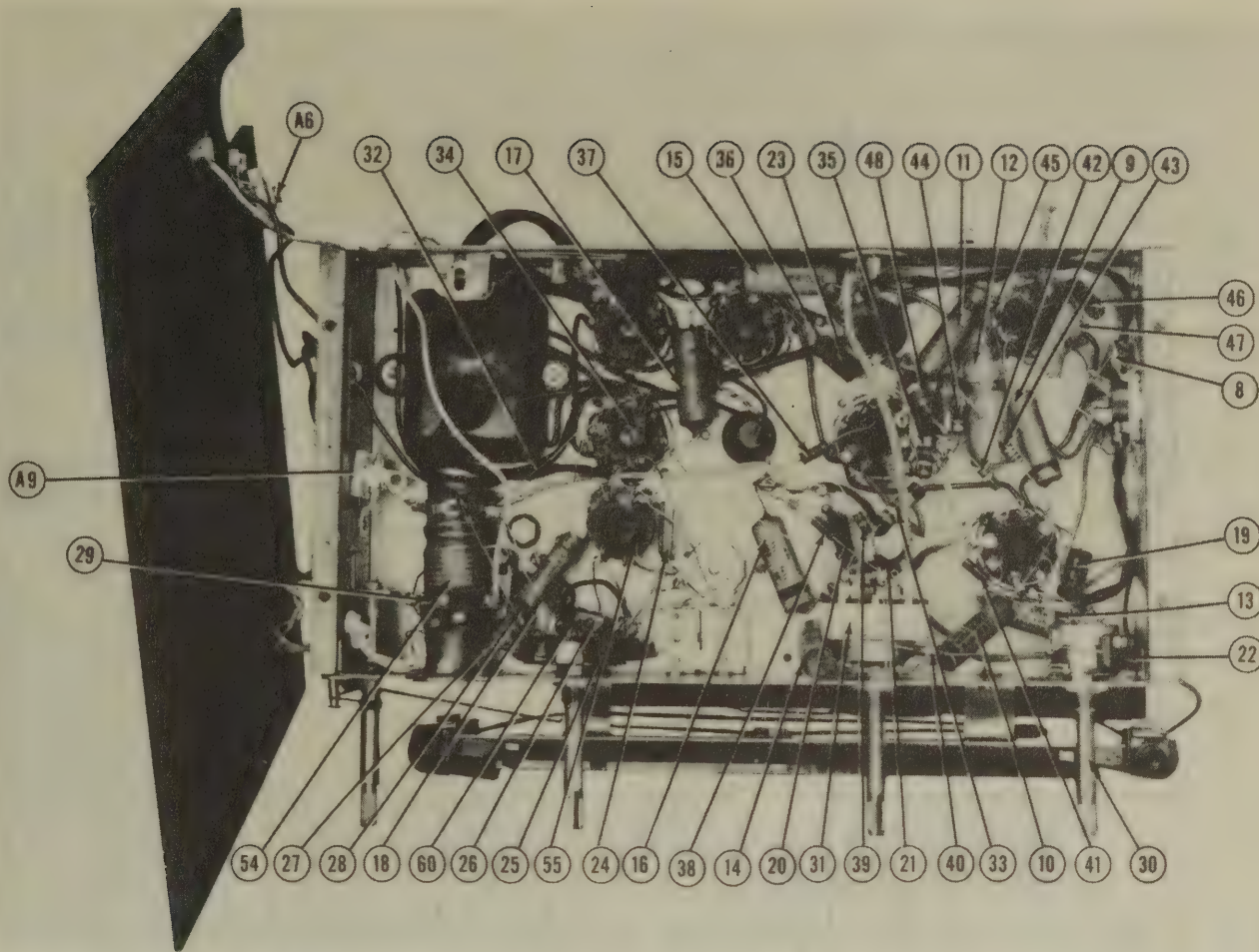
DIAL LIGHT

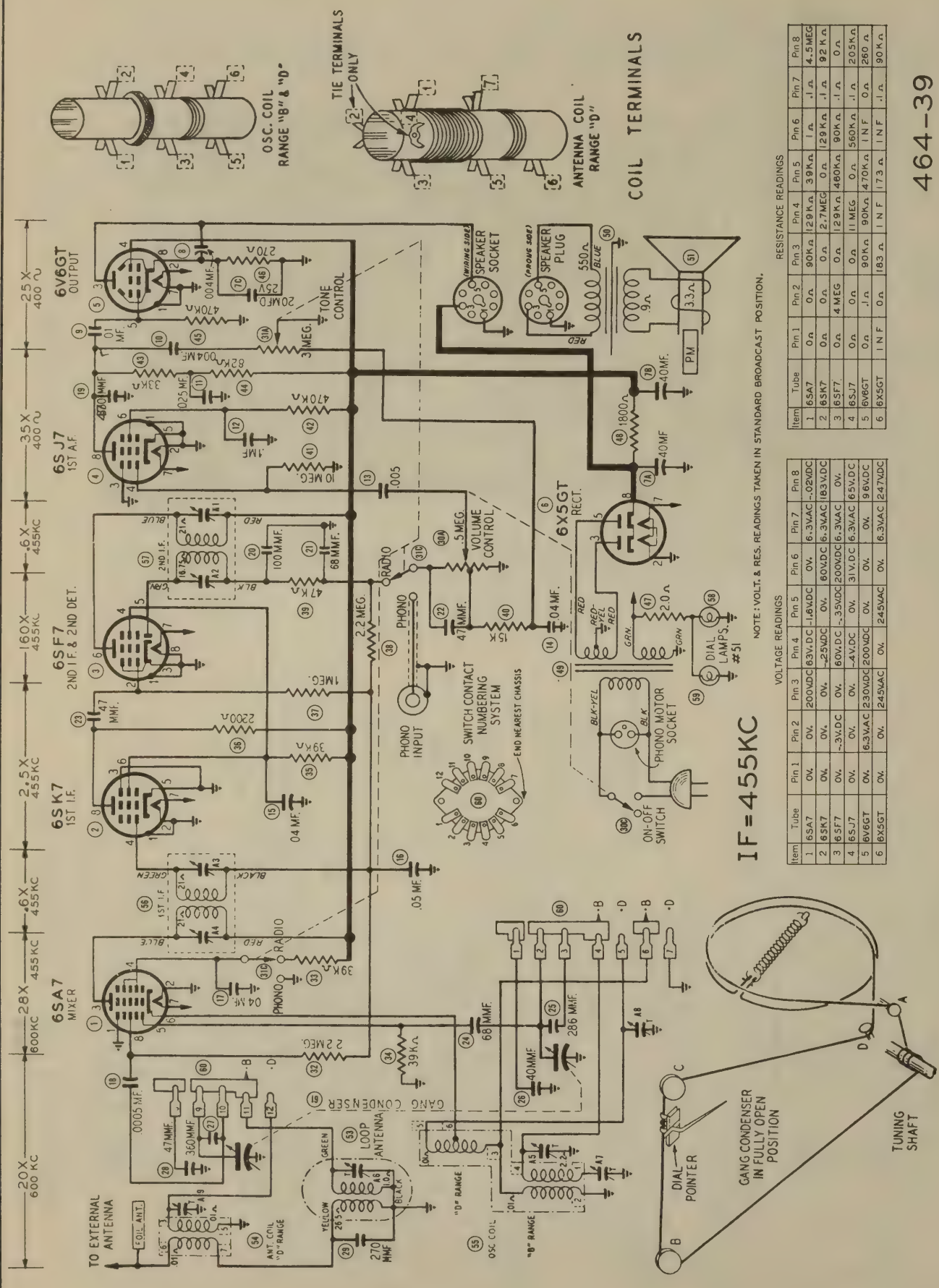
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	TRUE-TONE PART No.	
58	bayonet	6-8	0.15	brown		Type 47
59	"	6-8	0.15	"		

MISCELLANEOUS

ITEM No.	PART NAME	TRUE-TONE PART No.	NOTES
60	Switch	2A359	band Change
61	Tuning Cap.	14A178	2 Gang Var. Cap. with Drive Pulley
A5	Trimmer Cap.	17A109	BC Osc. Adj. 2.5-35 mF
A6	Trimmer Cap.	17A123	BC Ant. adj. 1-12 mF
A7	Padder Cap.	17A155	BC Osc. Pad 350-450 mF
A9	Trimmer Cap.	17A164	SW Ant. Adj. 5-50 mF
	Pickup Cartridge	10A578	Astatic L-75 or equivalent
	Knob	10A579	Tuning
	"	10A580	Off-On, Volume
	"	10A581	Tone, Radio-Phono
	"		SW-BC

CHASSIS—BOTTOM VIEW





The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage variations from 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

IF = 455 KC

NOTE: VOLT. & RES. READINGS TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	OV.	OV.	200VDC 63VDC -1.6VDC	OV.	6.3VAC -0.2VDC	OV.	6.3VAC 1.83VDC	OV.
2	6SF7	OV.	OV.	OV.	OV.	60VDC 6.3VAC 183VDC	OV.	OV.	OV.
3	6SF7	OV.	OV.	OV.	OV.	60VDC -35VDC 200VDC 6.3VAC	OV.	OV.	OV.
4	6SJ7	OV.	OV.	OV.	OV.	31VDC 6.3VAC 65VDC	OV.	OV.	OV.
5	6V6GT	OV.	OV.	OV.	OV.	245VAC 200VDC	OV.	OV.	OV.
6	6X5GT	OV.	OV.	OV.	OV.	245VAC	OV.	6.3VAC 247VDC	OV.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	0 Ω	0 Ω	90K Ω 129K Ω	39K Ω	1 Ω	1 Ω	4.5MEG	92K Ω
2	6SF7	0 Ω	0 Ω	0 Ω	2.7MEG	0 Ω	129K Ω	1 Ω	0 Ω
3	6SF7	0 Ω	0 Ω	0 Ω	4MEG	0 Ω	29K Ω	90K Ω	1 Ω
4	6SJ7	0 Ω	0 Ω	0 Ω	11MEG	0 Ω	560K Ω	1 Ω	205K Ω
5	6V6GT	0 Ω	0 Ω	0 Ω	90K Ω	470K Ω	1 Ω	260 Ω	90K Ω
6	6X5GT	1 Ω	183 Ω	1 Ω	173 Ω	1 Ω	1 Ω	1 Ω	90K Ω

ZENITH MODEL 8H023

TRADE NAME Zenith Models 8H023-8H034 (Chassis No. 8C01)
MANUFACTURER Zenith Radio Corp., 6001 Dickens Ave., Chicago, Ill.
TYPE SET AM-FM, AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (EIGHT) Types, 6AG5 RF Amp., 6SB7 Converter, 6SG7GT IF Amp., 6SH7 IF Amp., 6SH7 Limiter, 6SS8GT Disc.-Det-AVC-AF, 25L6GT Power Output, 25Z6GT Rectifier.

POWER SUPPLY 117 Volt AC-DC **RATING** - .310 Amps. @ 117V AC
TUNING RANGE-BROADCAST 540-1620KC **F.M.-100** 88-108MC **F.M.-45** 42-48.5MC

ALIGNMENT INSTRUCTIONS

Use isolation transformer in order to avoid hot chassis. VTVM (vacuum tube voltmeter) must have a 200KΩ resistor in series with hot lead (shielded). Volume control at maximum volume. For AM alignment keep signal generator output no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. When aligning the AM and FM IF's do not press hard on the alignment tool or threads in coil forms will strip making them impossible to adjust. When adjusting A15, A16, A17, and A18 considerable signal will be necessary and it will tune broadly. If signal generator does not have sufficient output load resistance may be increased over 300Ω.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to pin #8 (grid) of 6SB7. Low side to chassis.	455KC modulated	BC	600KC	Across voice coil	A1, A2, A3, A4, A5, A6.	Adjust for maximum output.
"	High side to pin #1 (grid) of 6AG5. Low side to chassis.	"	"	"	"	A7	" " minimum "
	Loop	1600KC modulated	"	1600KC	"	A8	Adjust for maximum output. Connect output of signal generator to 2 turn loop and radiate signal into wavemagnet.
	"	1400KC modulated	"	1400KC	"	A9, A10	"
.05 MFD	High side to pin #4 (grid) of 6SH7 (limiter). Low side to chassis.	8.3MC unmodulated	FM45		VTVM from pin 5 on disc.trans. to chassis	A11	Adjust for maximum reading
"	"	"	"		VTVM from pin 7 on disc.trans. to chassis	A12	Adjust for zero reading. Use sufficient signal to get positive and negative reading before zero setting
"	High side to pin #4 (grid) of 6SH7 (2nd IF). Low side to chassis.	"	"		VTVM from pin 4 (grid) of 6SH7 limiter to chassis.	A13, A14	Adjust for maximum reading.
"	High side to pin #4 (grid) of 6SG7 (1st IF). Low side to chassis.	"	"		"	A15, A16	Adjust for maximum reading. Solder 300 ohm 1/2 watt carbon resistor across secondary of 2nd IF trans. (pin 2 to 3). Remove after adjusting A18.
"	High side to pin #8 (grid) of 6SB7. Low side to chassis.	"	"		"	A17, A18	"
270Ω res.	High side to ant. post. (Remove line ant.) Low side to chassis.	98MC unmodulated	FM100	98MC	"	A19	Adjust for maximum reading
"	"	"	"	"	"	A20, A21	" " " "
"	"	45MC unmodulated	FM45	45MC	"	A22	" " " "
"	"	"	"	"	"	A23, A24	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA CASE TYPE	INSTALLATION NOTES
		ZENITH PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6AG5	6AG5	7BD	
2	Converter	6SE7	6SE7	8R	
3	1st IF Amp.	6SG7GT	6SG7GT	8BK	
4	2nd IF Amp.	6SH7	6SH7	8BK	
5	Limiter	6SH7	6SH7	8BK	
6	Disc.-Det.-AVC-AF	6SG7	6SG7		
7	Power output	25L6GT	25L6GT	7AC	
8	Rectifier	25Z6GT	25Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

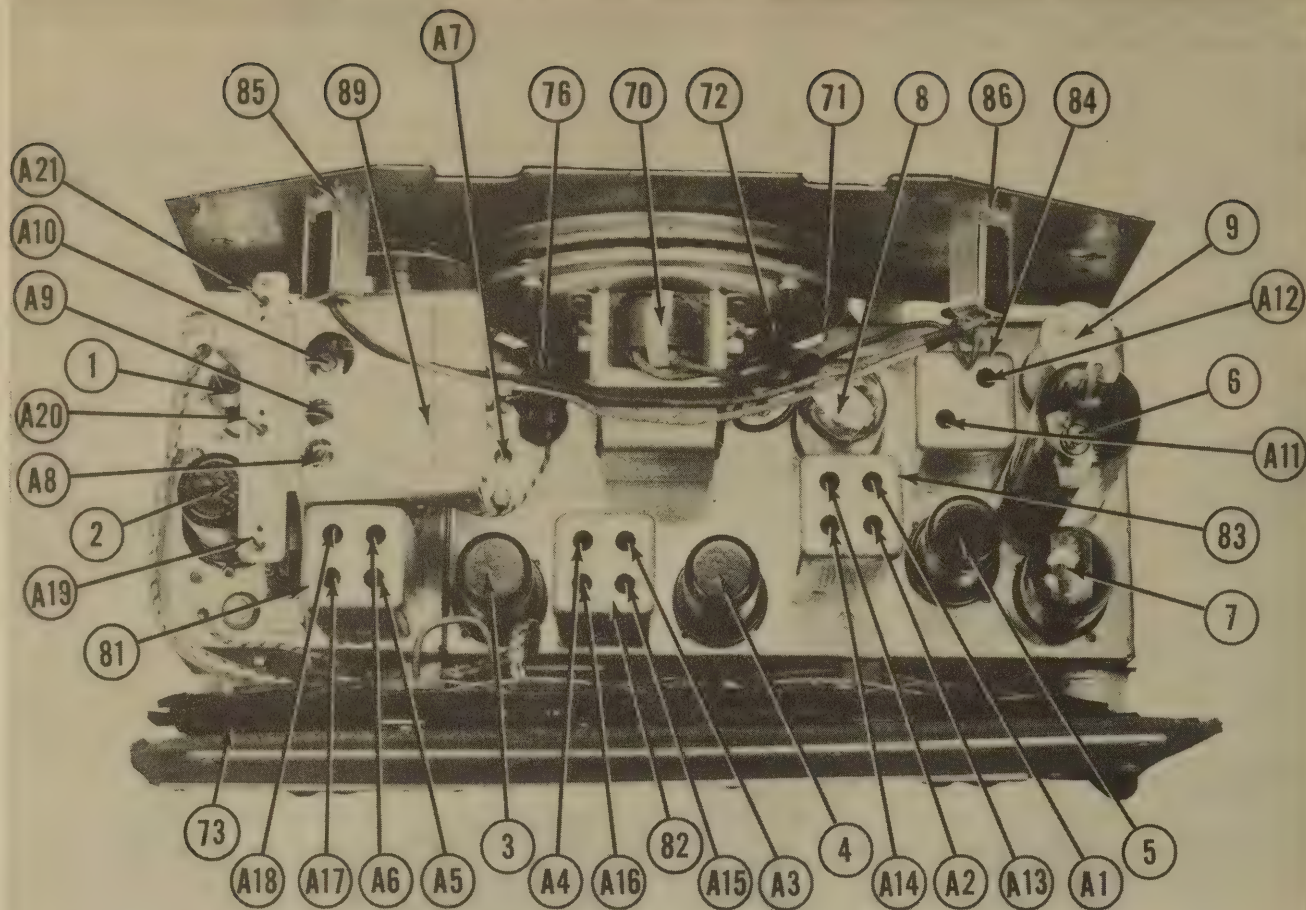
ITEM No.	RATING		ZENITH PART No.	MALLORY PART No.	REPLACEMENT DATA				CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT			SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.			
9A	40	150	22-1365	FP357	DY-2x40-150/40-25	EL-340	AF8BD4A	UF6CU44	▲ Filter	Cath. By-pass Line Filter Filament By-pass Tone Compensation Audio Coupling Vol. Cont. Isolation Tone Compensation " " " " Audio Coupling Limiter Plate By-pass Limiter Screen By-pass 2nd If Screen By-pass 2nd If Cath. By-pass 1st If Screen By-pass AVC Filter Conv. Plate By-pass Ant. Coupling FM Antenna Filament By-pass " " Limiter Grid Cap. Conv. Screen By-pass Osc. Grid Cap. Fixed Trimmer RF Coupling " " RF Plate Decoup. FM RF Screen By-pass Fixed Tuning FM Ant. AVC filter
B	40	150								
C	40	25								
10	.05	200	22-1017	TP426	S-4-05	TC-15	PR825-20			
11	.10	200	22-829	TP426	S-4-05	TC-15	484-.05	DT4S5		
12	.001	200	22-1439	TP404	S-6-001	TC-21	484-.001	DT6D1		
13	.2	200	22-1531	TP429	S-4-2	TC-2	484-.2	DT4P2		
14	.02	400	22-1127	TP423	S-4-02	TC-12	484-.02	DT4S2		
15	.02	600	22-830	TP412	S-6-02	TC-12	684-.02	DT6S2		
16	.05	200	22-829	TP426	S-4-05	TC-15	484-.05	DT4S5		
17	.003	600	22-288	TP406	S-6-003	TC-23	684-.003	DT6D3		
18A	.008	200	22-1530	TP450	S-4-02	TC-12	484-.02	DT4S2		
B	.01	600	22-136	TP410	S-6-01	TC-11	684-.01	DT6S1		
20	.02	200	22-1366	TP423	S-6-02	TC-12	484-.02	DT4S2		
21	.001	200	22-1439	TP404	S-6-001	TC-21	484-.001	DT6D1		
22	.01	200	22-1385	TP421	S-4-01	TC-11	484-.01	DT4S1		
23	.01	200	22-1385	TP421	S-4-01	TC-11	484-.01	DT4S1		
24	.01	200	22-1385	TP421	S-4-01	TC-11	484-.01	DT4S1		
25	.05	200	22-829	TP426	S-4-05	TC-15	484-.05	DT4S5		
26	.01	200	22-1385	TP421	S-4-01	TC-11	484-.01	DT4S1		
27	.01	200	22-1385	TP421	S-4-01	TC-11	484-.01	DT4S1		
28	500	500	22-1138	MC245	MO-5-35	1FM-35	1468-.0005	SW575		
29	100	500	22-162	MC235	MO-5-31	1FM-31	1468-.0001	SW571		
30	475	500	27-87							
31	475	500	27-87							
32	50	22-1367	27-87							
33	475	500	27-87							
34	50	22-1367	27-87							
35	50	22-1492	27-87							
36	15	22-1490	27-87							
37	250	500	22-182	MC240	MO-5-325	1FM-325	1468-.00035	SW5725		
38	10	22-1489	27-87							
39	100	500	22-162	MC235	MO-5-31	1FM-31	1468-.0001	SW571		
40	475	500	27-87							
41	20	500	22-1491							
42	100	500	22-1488	MC235	MO-5-31	1FM-31	1468-.0001	SW571		

* Not in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		ZENITH PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
43	2.5 Meg	1	63-1336			Volume Control & SW

CHASSIS—TOP VIEW

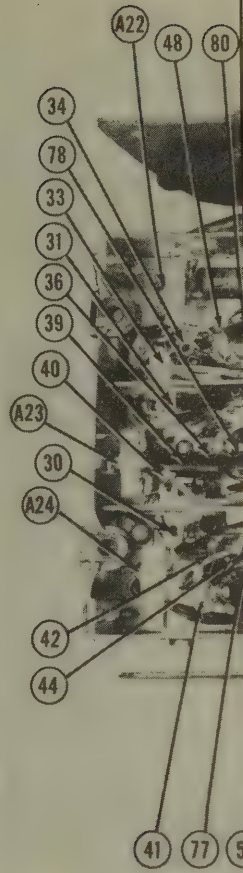


PARTS LIST AND DESCRIPTIONS (Continued)

CHASSIS—BOTTOM VIEW

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PART No.	IRC PART No.	
44	220K	1/2	63-717	BTS-220K	Red-Red-Yl. AVC Filter
45	680K	1/2	63-582	BTS-680	Blue-Gray-Bk. RF Screen Filter
46	680K	1/2	63-639	BTS-380	Blue-Gray-Red RF Plate Load
47	220K	1/2	63-296	BTS-220K	Red-Red-Yl. Converter Grid
48	33K	1/2	63-785	BTS-33K	Or. -Or. -Osc. Grid
49	680K	1/2	63-582	BTS-680	Blue-Gray-Bk. Converter Screen Filter
50	680K	1/2	63-722	BTS-680	Red-Red-Gn. AVC Network
51	2.2 Meg.	1/2	63-722	BTS-2.2 Meg.	Red-Red-Gn. AVC Network
52	220K	1/2	63-582	BTS-680	Blue-Gray-Bk. 1st IF Cathode
53	220K	1/2	63-579	BTS-220	Red-Red-Bk. 2nd IF Decoupling
54	680K	1/2	63-582	BTS-680	Blue-Gray-Bk. 2nd IF Decoupling



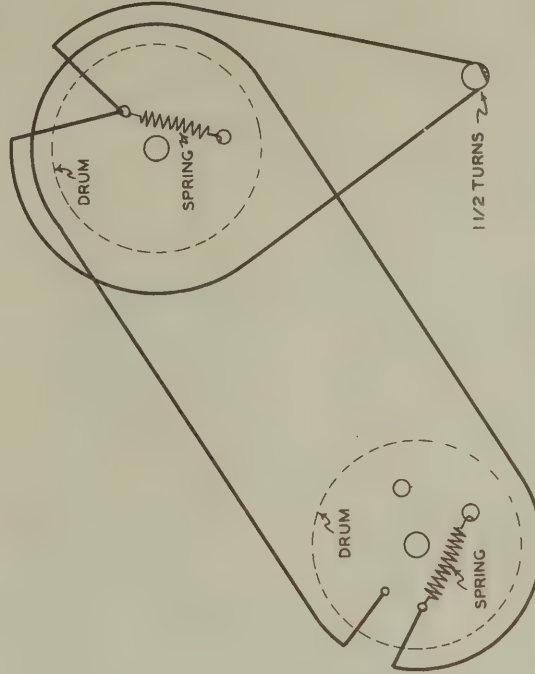
VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6AG5	-4VDC	0V	26.5VAC	33.5VAC	50VDC	95VDC	0V		
2	6SB7	0V	33.5VAC	93VDC	87VDC	-4VDC	0V	39.6VAC	-02VDC	
3	6SG7GT	0V	26.5VAC	0V	-4VDC	0V	87VDC	19.5VAC	87VDC	
4	6SH7	0V	12.5VAC	1.15VDC	0V	1.15VDC	90VDC	19.5VAC	90VDC	
5	6SH7	0V	12.5VAC	0V	-27VDC	0V	21VDC	6.3VAC	57VDC	
6	6S8GT	-25VDC	0V	-25VDC	-22VDC	-02VDC	46VDC	6.3VAC	0V	-45VDC
7	25L6GT	0V	67VAC	83VDC	93VDC	0V	0V	39.6VAC	8VDC	
8	25Z6GT	0V	92VAC	117VAC	117VAC	97VDC	67VAC	117VDC		

NOTE: VOLT. & RES. TAKEN IN STANDARD BROADCAST POSITION

RESISTANCE READINGS

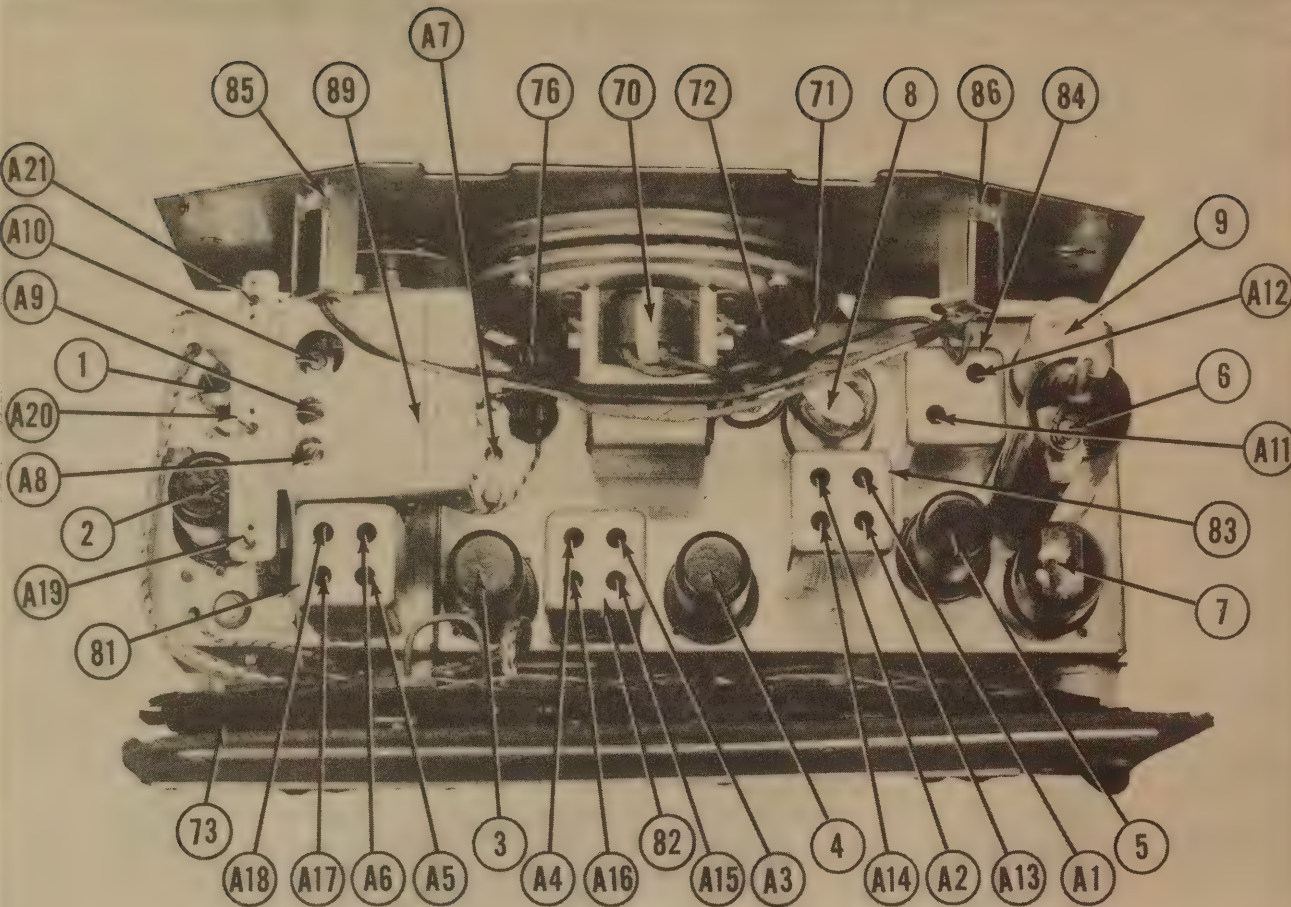
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6AG5	2.6MEG	0n	15.5n	18.5n	19Kn	13Kn	0n		
2	6SB7	0n	18.5n	13.5Kn	13.5Kn	30Kn	.5n	23n	210Kn	
3	6SG7GT	0n	15.5n	0n	2.4MEG	0n	13.5Kn	11n	13.5Kn	
4	6SH7	0n	6n	232n	1.25n	232n	13.5Kn	11n	13.5Kn	
5	6SH7	0n	6n	0n	39Kn	0n	2.8Kn	3n	54Kn	
6	6S8GT	500Kn	0n	105Kn	105Kn	195Kn	420Kn	3n	0n	4IMEG
7	25L6GT	0n	40n	13Kn	13Kn	390Kn	1NF	23n	145n	
8	25Z6GT	0n	51n	115n	13Kn	40n	12Kn	40n	13Kn	



DIAL CORD DRIVE

PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW



TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		ZENITH PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6AG5	6AG5	7BD	
2	Converter	6SE7	6SE7	8R	
3	1st IF Amp.	6SG7GT	6SG7GT	8BK	
4	2nd IF Amp.	6SH7	6SH7	8BK	
5	Limiter	6SH7	6SH7	8BK	
6	Disc.-Det.-AVC-AF	6S8GT	6S8GT		
7	Power Output	25L6GT	25L6GT	7AC	
8	Rectifier	25Z6GT	25Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		ZENITH PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
9A	40	22-1365	FP357	DY-2x40-150/40-25	EL-340	AF8BD4A
B	150					
C	40					
10	200	22-1017	TP426	S-4-05	TC-15	PRS25-20
11	05	22-929	TP426	S-4-05	TC-15	484-.05
12	001	22-1439	TP404	S-6-001	TC-21	484-.05
13	2	22-1531	TP429	S-4-2	TC-2	484-.01
14	02	22-1127	TP423	S-4-02	TC-12	484-.02
15	02	22-850	TP412	S-6-02	TC-12	684-.02
16	05	22-829	TP426	S-4-05	TC-15	484-.05
17	003	22-288	TP406	S-6-003	TC-23	684-.003
18A	008	22-1530	TP450			
B	02					
19	01	22-196	TP410	S-6-01	TC-12	484-.02
20	02	22-1366	TP423	S-6-02	TC-12	684-.01
21	001	22-1439	TP404	S-6-001	TC-21	484-.01
22	01	22-1385	TP421	S-4-01	TC-11	484-.01
23	01	22-1385	TP421	S-4-01	TC-11	484-.01
24	01	22-1385	TP421	S-4-01	TC-11	484-.01
25	05	22-929	TP426	S-4-05	TC-15	484-.05
26	01	22-1385	TP421	S-4-01	TC-11	484-.01
27	01	22-1385	TP421	S-4-01	TC-11	484-.01
28	500	22-1138	MC245	MO-5-35	LFM-35	1468-.0005
29	100	22-162	MC235	MO-5-31	LFM-31	1468-.0001
30	475	27-87				
31	475	27-87				
32	50	22-1367				
33	475	27-87				
34	50	22-1367				
35	50	22-1492				
36	180	22-1490				
37	250	22-182				
38	10	22-1489	MC240	MO-5-325	LFM-325	1468-.00035
39	100	22-162	MC235	MO-5-31	LFM-31	1468-.0001
40	475	27-87				
41	20	22-1491				
42	100	22-1486	MC235	MO-5-31	LFM-31	1468-.0001

* Not in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		ZENITH PART No.	MALLORY PART No.	CLAROSTAT PART No.	
43	2.5 Meg. 1	63-1335			Volume Control & SW

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	ZENITH PART No.	IRC PART No.	
44	220K Ω	1/4	63-717	BTS-220K	Red-Red-Yl. AVC Filter
45	680 Ω	1/4	63-582	BTS-680	Blue-Gray-br. RF Screen Filter
46	6800 Ω	1/4	63-639	BTS-3800	Blue-Gray-Red RF Plate Load
47	220K Ω	1/4	63-296	BTS-220K	Red-Red-Yl. Converter Grid
48	33K Ω	1/4	63-765	BTS-33K	Or.-Or.-Or. Osc. Grid
49	680 Ω	1/4	63-582	BTS-680	Blue-Gray-Br. Converter Screen Filter
50	680 Ω	1/4	63-582	BTS-680	Blue-Gray-Br. Plate Decoupling
51	2.2 Meg.	1/4	63-722	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
52	680 Ω	1/4	63-582	BTS-680	Blue-Gray-Br. 1st IF Decoupling
53	220 Ω	1/4	63-579	BW-220	Red-Red-Br. 2nd IF Cathode
54	680 Ω	1/4	63-582	BTS-680	Blue-Gray-Br. 2nd IF Decoupling
55	10K Ω	1	63-1216	BTA-10K	Br.-Blk.-Or. Limiter Screen Dropping
56	3000 Ω	1/4	63-586	BTS-3300	Or.-Blk.-Red Bleeder
57	220K Ω	1/4	63-296	BTS-220K	Red-Red-Yl. De-emphasis
58	100K Ω	1/4	63-595	BTS-100K	Br.-Blk.-Yl. Discriminator Load
59	100K Ω	1/4	63-595	BTS-100K	Br.-Blk.-Yl. Discriminator Load
60	4.7 Meg.	1/4	63-602	BTS-4.7 Meg.	Yl.-Vl.-Grn. 1st AF Grid
61	47K Ω	1/4	63-593	BTS-47K	Yl.-Vl.-Or. Tone Compensation
62	10 Meg.	1/4	63-374	BTS-10 Meg.	Br.-Blk.-Blue Feedback
63	150 Ω	1/4	63-1237	BW-150	Br.-Grn.-Br. Output Cathode
64	470K Ω	1/4	63-719	BTS-470K	Yl.-Vl.-Yl. Output Grid
65	470K Ω	1/4	63-597	BTS-470K	Yl.-Vl.-Yl. 1st AF Plate Load
66	30-87 Ω	10	ABA-100		Line Dropping & Pilot Light Shunt
67	22 Ω	2	BT-2-22		Red-Red-Blk. Surge Limiter - See Note 1
68	47K Ω	1/4	63-593	BTS-47K	Yl.-Vl.-Or. Limiter Grid
69	47K Ω	1/4	63-593	BTS-47K	Yl.-Vl.-Or. Limiter Plate Decoupling

#Adjust slider to 32 Ω on one side of tap and 68 Ω on other side.
Note 1 - Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.		ZENITH PART No.	STANCOR PART No.	THORDAR'N PART No.	
	PRI.	SEC.	PRI.	SEC.				
70	1570 Ω	3.15 Ω	280 Ω	.92	Part of 49-516	A-3876	T-14S82	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
			ZENITH PART No.	JENSEN PART No.	
71	FIELD RES. 230 Ω	VC IMP. 3.15 Ω	49-516	ST-4501	†Add 450 Ω 2w resistor in parallel with field coil.
72	CONE DIA. 4-7/8"	VC DIA. 9/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	
73	BC Loop Ant.	0 Ω	1 Ω	S11135		If Transformers for both freq. ranges in same can.
74	" Det. Coil	0 Ω	12 Ω	S11156		
75	Wave Trap	40 Ω		S12250		
76	BC Osc. Coil	0 Ω	9.6 Ω	S11157		
77	FM Ant. "	0 Ω	0 Ω	S12257		
78	" Det. "	0 Ω	0 Ω	S12258		
79	RF Choke	0 Ω	0 Ω	S12256		
80	FM Osc. Coil	0 Ω	0 Ω	S12259		
81A	Input IF BC	9 Ω	9 Ω	S12249		
B	" " FM		.6 Ω			
82A	Interstage BC	8.3 Ω	7.5 Ω	S12250		
82B	" " FM	.7 Ω				
83A	Output IF BC	1/4	1/4	S12488		
83B	" " FM	1/4	1/4			
84	Disc. IF	1.2 Ω	121 Ω **	S12252		

*Unable to read due to construction
**Secondary centertapped

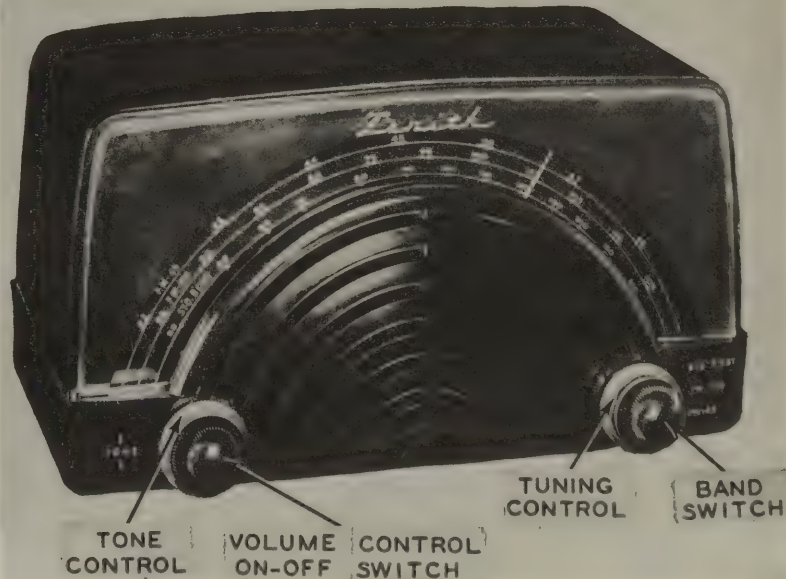
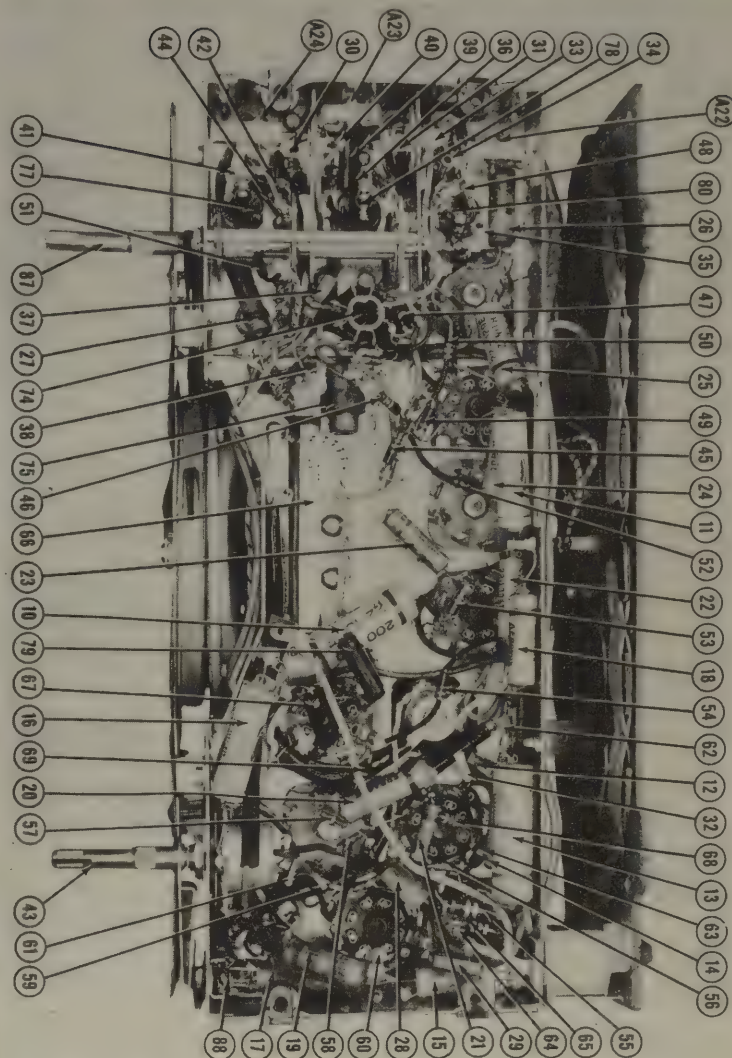
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ZENITH PART No.		
85	Bayonet	6-8	0.15	Brown	100-67		Type 47
86	"	6-8	0.15	"	100-67		"

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
87	Band Switch	85-384	
88	Tone switch	85-385	
89	Tuning Cap.	22-1359	3 Uang Variable Cap.
A22	Trimmer	22-1487	FM Osc. Adjustment
A23	"	22-1486	FM Det. Adjustment
A24	"	22-1485	FM Ant. Adjustment

CHASSIS—BOTTOM VIEW



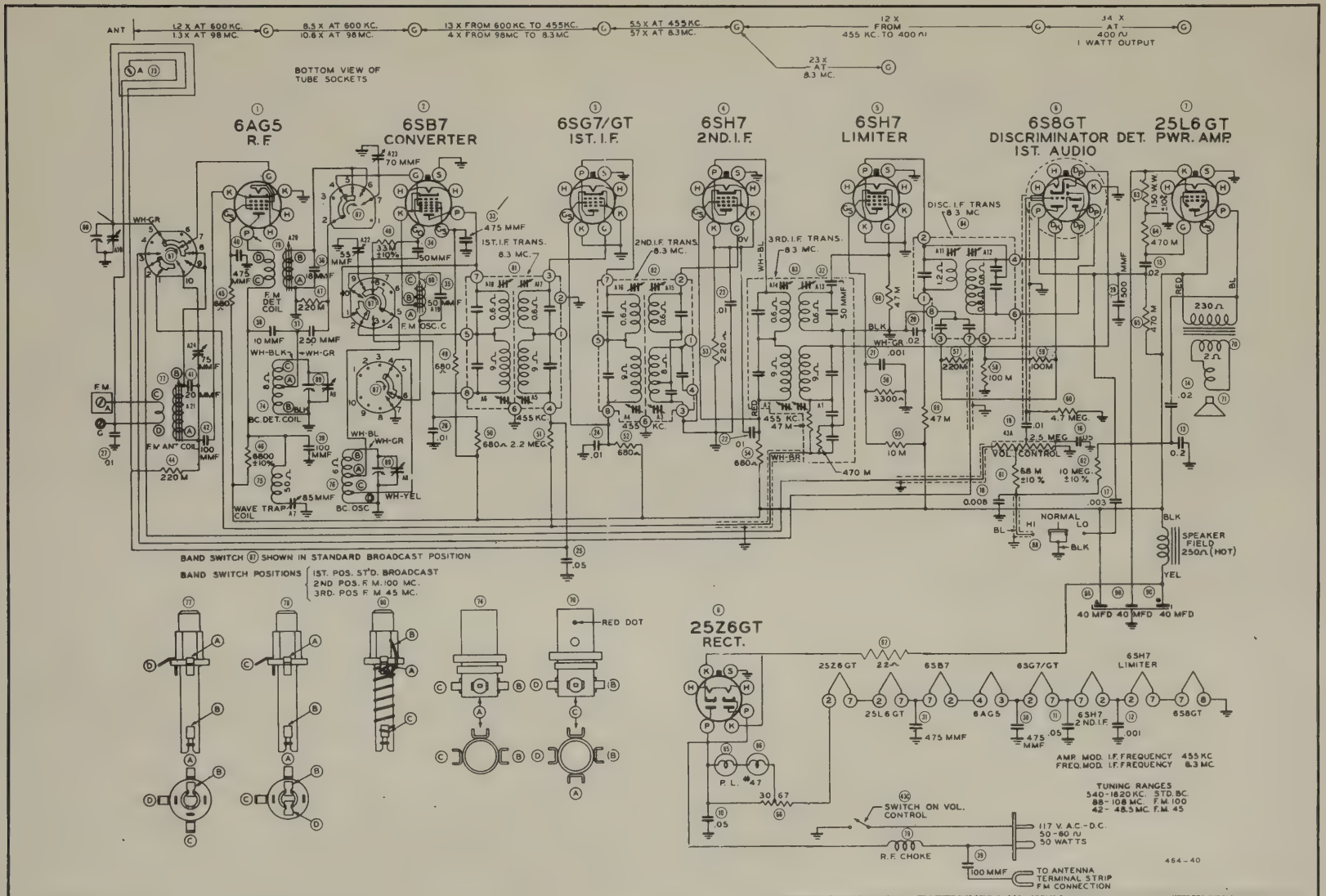
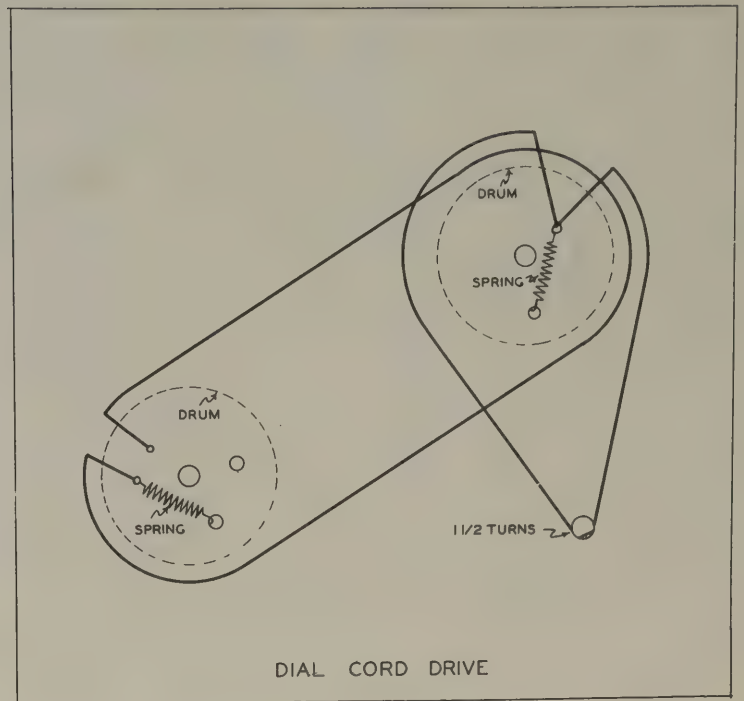
VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6AG5	-4V.D.C.	OV.	26.5VAC	33.5VAC	50V.D.C.	95V.D.C.	OV.		
2	6SB7	OV.	33.5VAC	93V.D.C.	87V.D.C.	-4V.D.C.	OV.	39.6VAC	-0.2V.D.C.	
3	6SG7GT	OV.	26.5VAC	OV.	-4V.D.C.	OV.	87V.D.C.	19.5VAC	87V.D.C.	
4	6SH7	OV.	12.5VAC	1.15V.D.C.	OV.	1.15V.D.C.	90V.D.C.	19.5VAC	90V.D.C.	
5	6SH7	OV.	12.5VAC	OV.	-27V.D.C.	OV.	21V.D.C.	6.3VAC	57V.D.C.	
6	6SB7	-25V.D.C.	OV.	-25V.D.C.	-22V.D.C.	-0.2V.D.C.	46V.D.C.	6.3VAC	OV.	-45V.D.C.
7	25L6GT	OV.	67VAC	83V.D.C.	93V.D.C.	OV.	OV.	39.6VAC	6V.D.C.	
8	25Z6GT	OV.	92VAC	117VAC	117VAC	117VAC	97V.D.C.	67VAC	117V.D.C.	

NOTE: VOLT. & RES. TAKEN IN STANDARD BROADCAST POSITION

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6AG5	2.6 MEG	0 Ω	15.5 Ω	18.5 Ω	19 K Ω	13 K Ω	0 Ω		
2	6SB7	0 Ω	18.5 Ω	13.5 K Ω	13.5 K Ω	30 K Ω	.5 Ω	23 Ω	210 K Ω	
3	6SG7GT	0 Ω	15.5 Ω	0 Ω	2.4 MEG	0 Ω	13.5 K Ω	11 Ω	13.5 K Ω	
4	6SH7	0 Ω	6 Ω	232 Ω	1.25 Ω	232 Ω	13.5 K Ω	11 Ω	13.5 K Ω	
5	6SH7	0 Ω	6 Ω	0 Ω	39 K Ω	0 Ω	2.8 K Ω	3 Ω	54 K Ω	
6	6SB7	500 K Ω	0 Ω	105 K Ω	105 K Ω	195 K Ω	420 K Ω	3 Ω	0 Ω	4.1 MEG
7	25L6GT	0 Ω	40 Ω	13 K Ω	13 K Ω	390 K Ω	1 N F	23 Ω	145 Ω	
8	25Z6GT	0 Ω	51 Ω	115 Ω	13 K Ω	40 Ω	12 K Ω	40 Ω	13 K Ω	

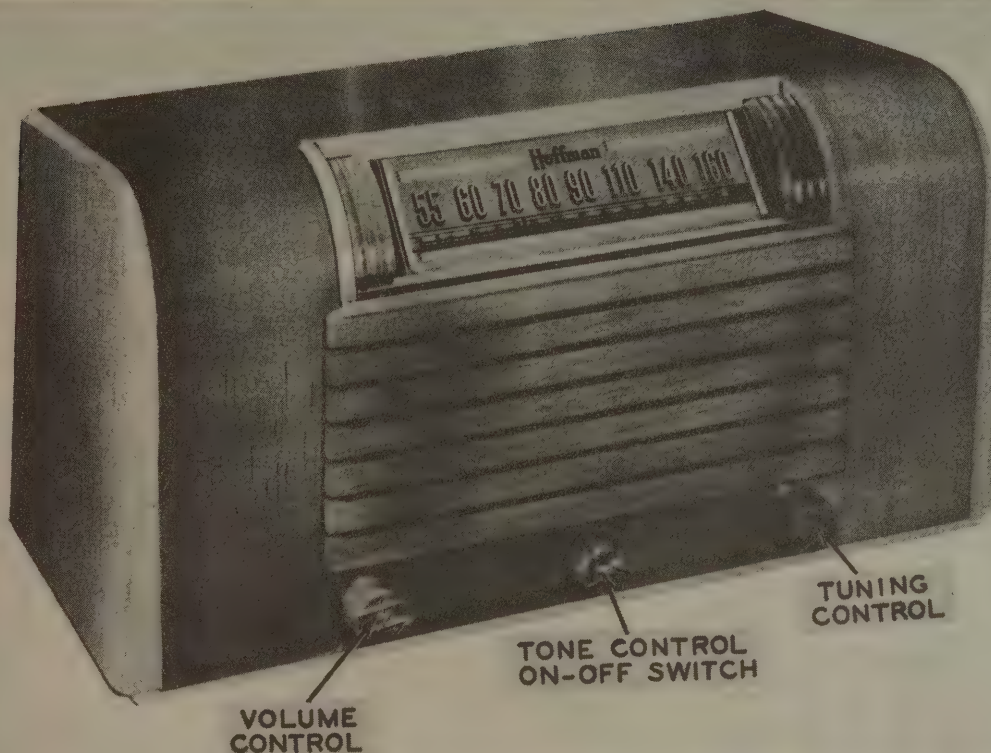


The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

HOFFMAN, MODEL A300
REPLACES FOLDER NO. 463-3
DATED 8-46



HOFFMAN MODEL A300

TRADE NAME Hoffman Model A300 (Chassis No. 100) MANUFACTURER Hoffman Radio Corp., 3430 South Hill Street, Los Angeles, California TYPE SET AC Superheterodyne - Self Contained Loop Antenna TUBES (SIX) Types 6SK7 RF Amp., 6SA7 Converter 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6K6GT Power Output, 6X5GT Rectifier. POWER SUPPLY 115 Volts AC Rating .480 Amps. @ 117 V AC TUNING RANGE—BROADCAST 535-1600KC SHORT WAVE						
ALIGNMENT INSTRUCTIONS						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05	High side to pin #8 (grid of 6SA7. Low side to chassis.	455KC	Point of no interfering signal.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output.
"	"	1600KC	1600KC	"	A5	" " " "
200 MMFD	High side to ext ant. Low side to chassis.	1400KC	Tune in 1400 KC signal.	"	A6, A7	" " " "

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

HOWARD W. SAMs & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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9-46 — 464-41
REPLACES FOLDER
463-3 — 8-46

HOFFMAN, MODEL A300
REPLACES FOLDER NO. 463-3
DATED 8-46

HOFFMAN, MODEL A300
REPLACES FOLDER NO. 463-3
DATED 8-46

PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		HOFFMAN PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SC7	6SC7	8C	
5	Power Output	6XSGT	6XSGT	7S	
6	Rectifier	6XSGT	6XSGT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP. VOLTS	REPLACEMENT DATA			IDENTIFICATION CODES AND INSTALLATION NOTES
		HOFFMAN PART No.	MALLORY PART No.	SOLAR PART No.	
7 (A)	20	4200	FP339	HY-2X20-450	EL-350
7 (B)	450				
7 (C)	25				
8	.01	4105	TP410	M-25-25	TC-11
9	.001	4104	TP404	S-6-01	TC-21
10	.01	4103	TP403	S-4-01	TC-11
11	.005	4102	TP402	S-6-005	TC-25
12	.005	4101	TP401	S-6-005	TC-25
13	.05	4101	TP426	S-4-05	TC-15
14	.05	4101	TP426	S-4-05	TC-15
15	.05	4101	TP426	S-4-05	TC-15
16	.05	4101	TP426	S-4-05	TC-15
17	100	5000	MC235	M0.5-31	1PM-31
18	100	5000	MC235	M0.5-31	1PM-31
19	100	5000	MC235	M0.5-31	1PM-31
20	100	5000	MC235	M0.5-31	1PM-31

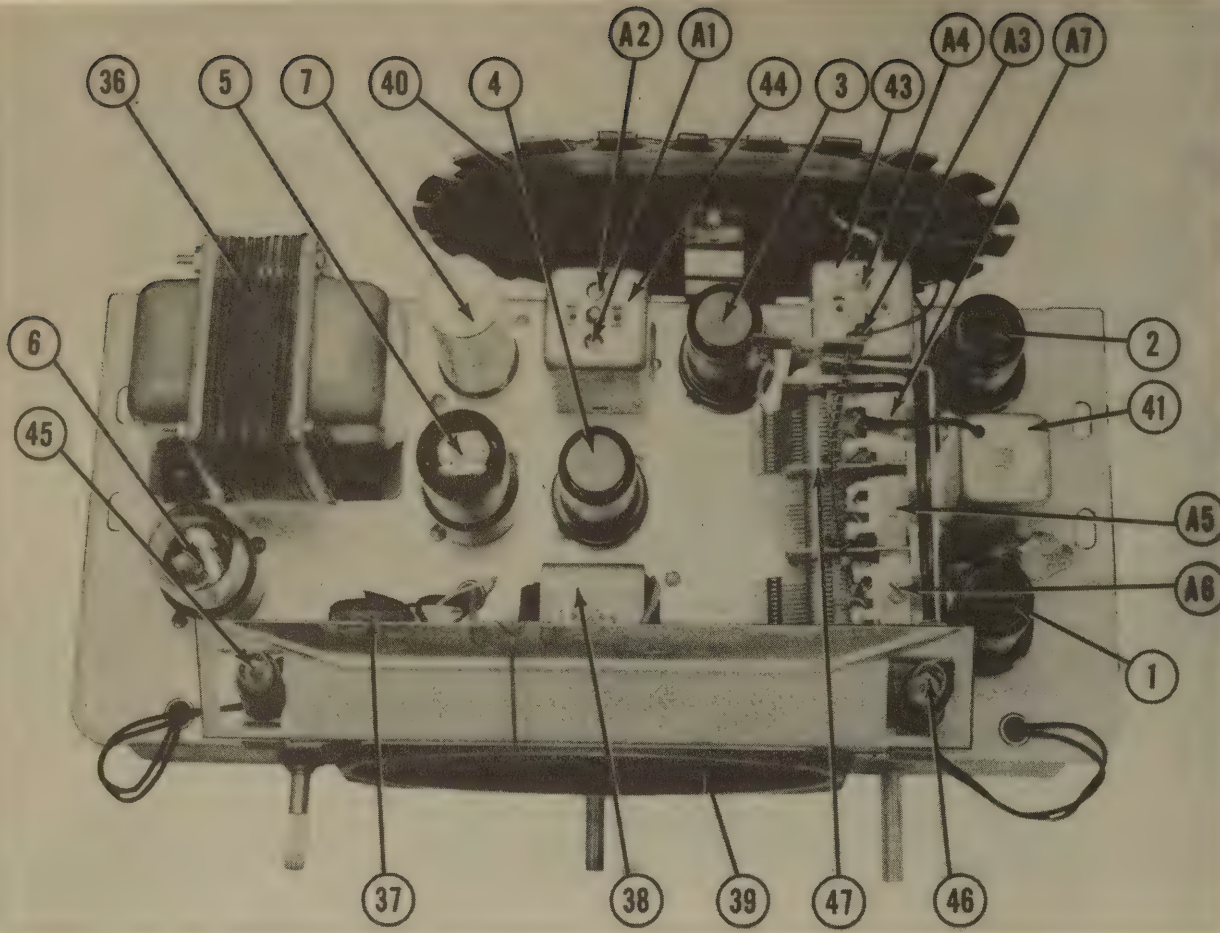
CONTROLS

ITEM No.	RATING RESISTANCE WATTS	REPLACEMENT DATA			INSTALLATION NOTES
		HOFFMAN PART No.	MALLORY PART No.	IRC PART No.	
21 (A)	500KΩ	1	MR48	D13-133	M-80-Z
22 (A)	250KΩ	1	MR44	D13-130	Not Req.
22 (B)	250KΩ	1	MR44	D13-130	Not Req.
22 (C)	250KΩ	1	MR44	D13-130	Not Req.

RESISTORS

ITEM No.	RATING RESISTANCE WATTS	REPLACEMENT DATA		IDENTIFICATION CODES
		HOFFMAN PART No.	IRC PART No.	
23	220KΩ			Red-Red-V1. AVC Network
24	10KΩ	4500	BTS-220K	Br.-Blk.-Or. Osc. Grid See Note 1
25	2.2 Meg.	4502	BTS-2.2 Meg	Red-Red-V1. AVC Network
26	10KΩ	4503	BT-2-10K	Br.-Blk.-Or. Screen Dropping
27	47KΩ	4504	BT-2-47K	Y1.-V1.-Or. Diode Load
28	47KΩ	4508	BM-4-47	Y1.-V1.-Blk. 1st AF Cathode
29	10 Meg.	4505	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
30	220KΩ	4500	BTS-220K	Red-Red-V1. 1st AF Plate Load
31	470KΩ	4503	BTS-470K	Y1.-V1.-V1. Output Grid Load
32	560Ω	4507	BM-4-560	Grn.-Blue-Br. Output Cathode
33	330Ω	4509	BM-4-330	Or.-Or.-Or. Audio Feedback
34	15KΩ		BTS-15K	Br.-Grn.-Or. Osc. Grid-See Note 1
35	10 Meg.	4505	BTS-10 Meg.	Br.-Blk.-Blue AVC Network-See Note 1

Note 1-In some models items 24 and 34 are a single 22KΩ resistor and item 35 is omitted.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	HOFFMAN PART No.	STANCOR PART No.	
36	117VAC @ .480A	290-290 @ .033A	5.9VAC @ 2.65A	5000	P-1620*	*Use universal mounting brackets and drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING			REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.		HOFFMAN PART No.	THORDAR'N PART No.	
37	7750Ω 3.1Ω	580Ω .92Ω		5100	A-3878 T-14581	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		INSTALLATION NOTES
	FIELD RES.	VC IMP.		HOFFMAN PART No.	JENSEN PART No.	
38	1450Ω	3.1Ω		9000		
39	4"x8"	3/4"		NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT.		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	HOFFMAN PART No.	MEISSNER PART No.	
40	Loop Ant.	0Ω	2.2Ω	5201		
41	RF Coil	.5Ω	5.8Ω	5202		
42	Osc. Coil		5.5Ω	5200		
43	Input If	14.4Ω	14.4Ω	5203	14-1040 13-5658	
44	Output If	26.5Ω	24Ω	5204	13-5660	

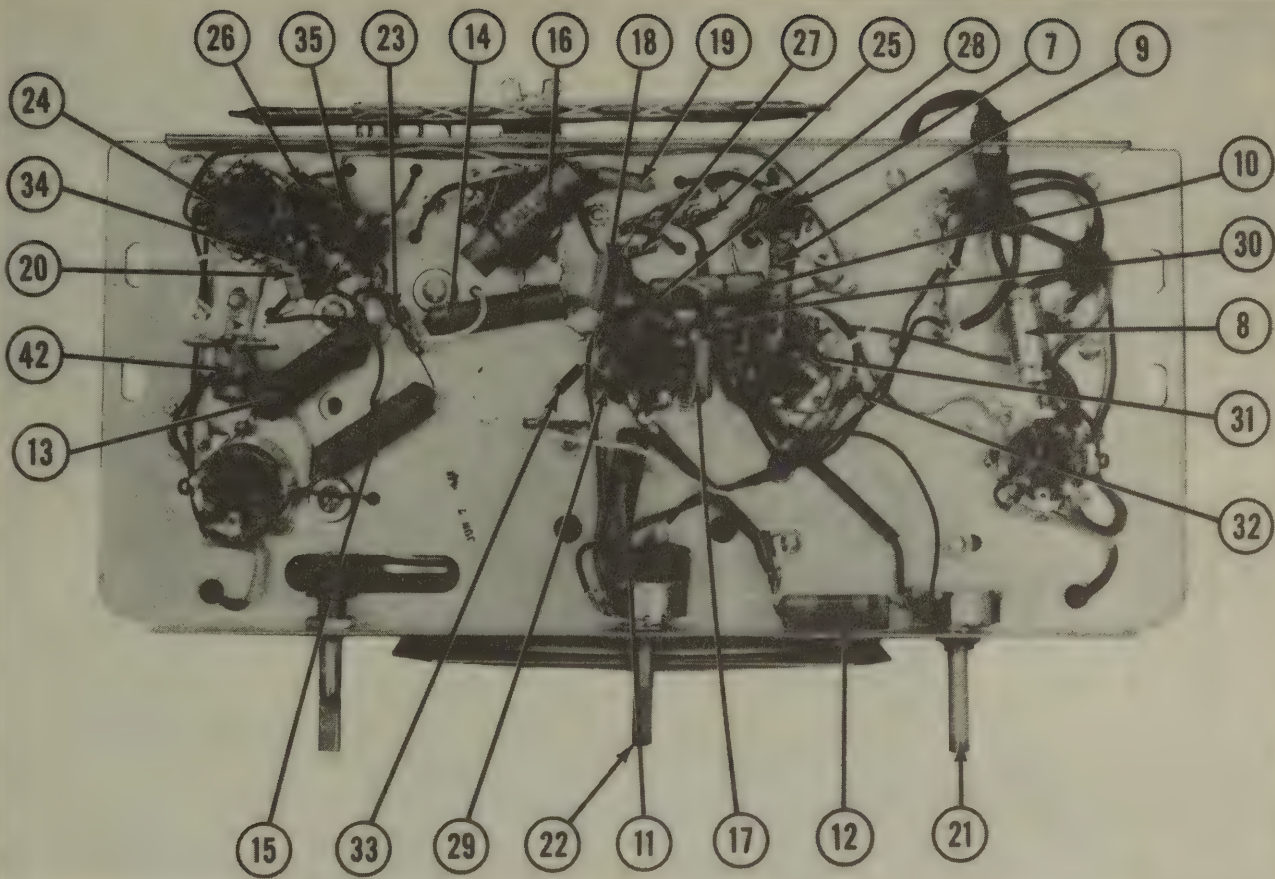
DIAL LIGHT

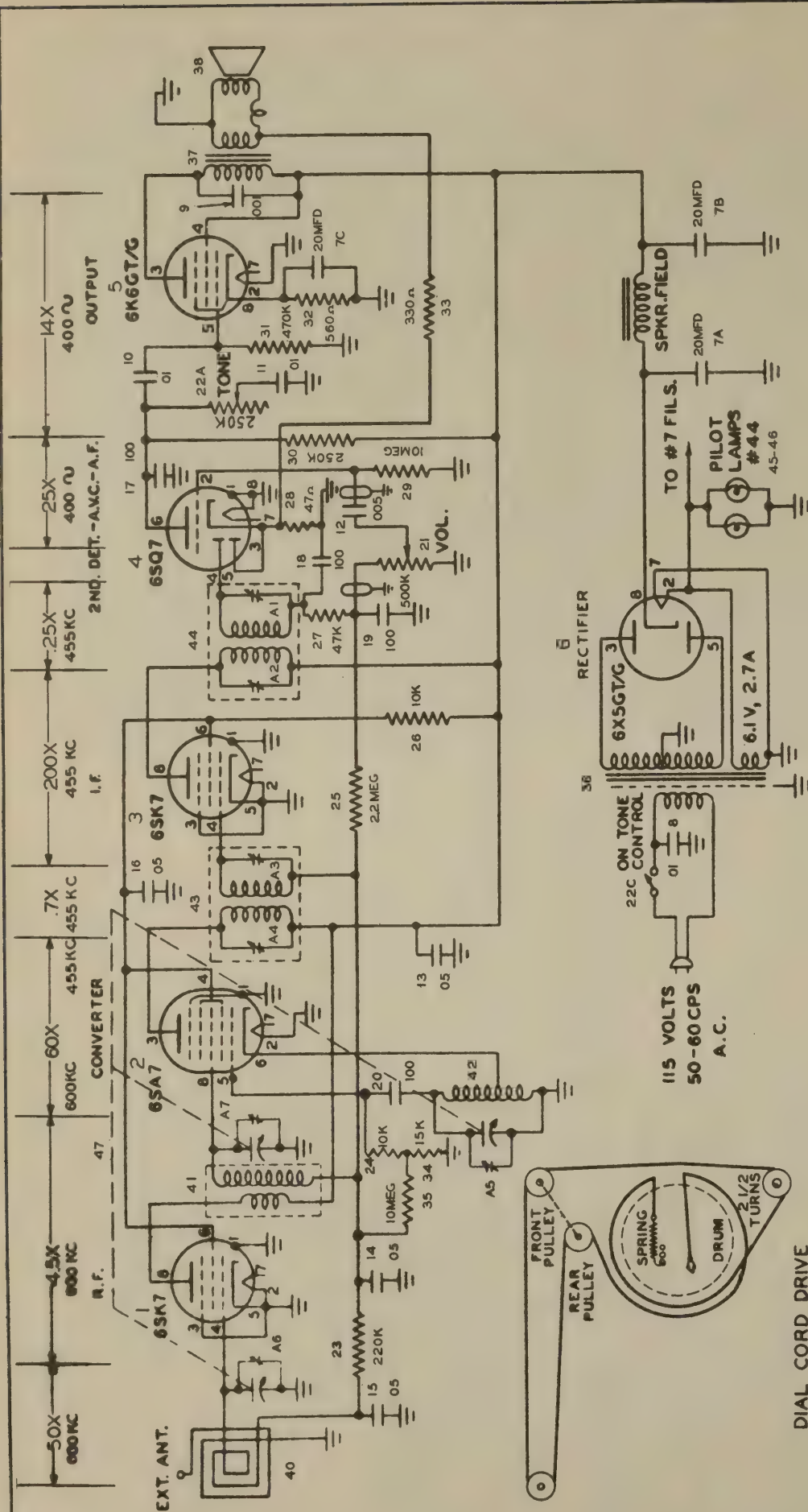
ITEM No.	BASE TYPE	VOLTS	AMPS.	REPLACEMENT DATA		INSTALLATION NOTES
				BEAD COLOR	HOFFMAN PART No.	
45	Bayonet	6-8	0.25	Blue		
46	Bayonet	6-8	0.25	Blue		Type 44

MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
47	Tuning Cap.		3 Gang Variable Cap. (388-388-160MWF.)

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V	0V	0V	0V	0V	73VDC	6VAC	212VDC
2	6SA7	0V	212VDC	73VDC	41VDC	0V	6VAC	6VAC	-4VDC
3	6SK7	0V	0V	0V	-4VDC	0V	73VDC	6VAC	212VDC
4	6SQ7	0V	-52VDC	0V	-22VDC	0V	97VDC	6VAC	0V
5	6K6GT	0V	200VDC	217VDC	0V	320VDC	6VAC	14.5VDC	0V
6	6X5GT	0V	9VAC	245VAC	0V	245VAC	0V	325VDC	0V

RESISTANCE READINGS

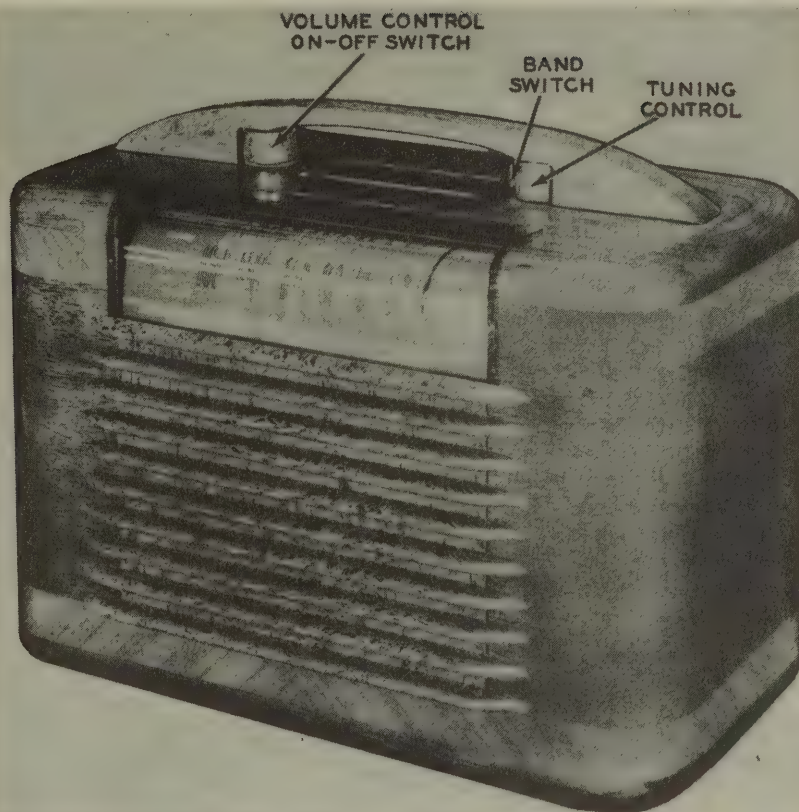
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0 Ω	0 Ω	0 Ω	2.2 MEG	0 Ω	86 K Ω	0 Ω	86 K Ω
2	6SA7	0 Ω	0 Ω	86 K Ω	86 K Ω	26 K Ω	4 Ω	0 Ω	1.9 MEG
3	6SK7	0 Ω	0 Ω	0 Ω	1.9 MEG	0 Ω	86 K Ω	0 Ω	86 K Ω
4	6SQ7	0 Ω	10 MEG	39 Ω	560 K Ω	39 Ω	340 K Ω	0 Ω	0 Ω
5	6K6GT	0 Ω	0 Ω	86 K Ω	86 K Ω	520 K	86 K Ω	0 Ω	520 Ω
6	6X5GT	0 Ω	0 Ω	140 Ω	140 Ω	140 Ω	1NF	0 Ω	80 K Ω

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

**PACKARD-BELL, MODEL 651
REPLACES FOLDER NO. 463-12
DATED 8-46**



PACKARD-BELL MODEL 651

TRADE NAME Packard-Bell Model 651
MANUFACTURER Packard-Bell Co., 3443 Wilshire Blvd., Los Angeles, California
TYPE SET AC 2 Band Superheterodyne - Self Contained Loop Antenna
TUBES(SIX) Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6K6GT Power Output, 6X5GT Rectifier.

POWER SUPPLY 110-120 Volts AC Rating .320 Amps. @ 117 V AC
TUNING RANGE—BROADCAST 540-1740KC **SHORT WAVE** 5.7-18.2MC

ALIGNMENT INSTRUCTIONS

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to pin #8 (grid) of 6SA7. Low side to chassis.	455KC	BC	550KC	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
"	High side to pin #4 of 6SK7. Low side to chassis.	"	"	"	"	A5	Adjust for minimum output
	Loop	1750KC	"	1750KC	"	A6	Adjust for maximum output. Connect output of signal generator to loop of few turns of wire and radiate signal into receiver loop
	"	600KC	"	600KC	"	A7	"
	"	"	"	"	"	A6,A7.	Repeat A6 and A7.
400Ω res.	High side to SW Ant. Lead. Low side to chassis.	18.2MC	SW	18.2MC	"	A8	Adjust for maximum output
"	"	15MC	"	15MC	"	A9	" " " "

Volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting. Move loop to one side to gain access to IF adjustments and return to original position for A6 and A7 adjustments.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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**PACKARD-BELL, MODEL 651
REPLACES FOLDER NO. 463-12
DATED 8-46**

**PACKARD-BELL, MODEL 651
REPLACES FOLDER NO. 463-12
DATED 8-46**

PARTS LIST AND DESCRIPTIONS

CHASSIS—TOP VIEW

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PACKARD-BELL PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8N	
3	1st AF Amp.	6SK7	6SK7	8N	
4	Det.-VC-A.F.	6SK7	6SK7	8Q	
5	Power output	6X6GT	6X6GT	7S	
6	Rectifier	6X6GT	6X6GT	8S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		PACKARD-BELL PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	
7	CAP.	240045	TC78	M-40-450	UT-203	Filter
8	40	240045	TC78	M-20-450	BR4045	
9	20	240045	TC78	M-20-450	BR2045	
10	.005	23004	TP408	S-6-005	DT6D5	6K6 Plate Bypass
11	.02	23007	TP412	S-6-02	DT6S2	Audio Coupling
12	.005	23004	TP408	S-3-005	DT6D5	
13	.05	23009	TP415	S-6-05	DT6S5	AVC Filter
14	.05	23009	TP415	S-6-05	DT6S5	Screen Bypass
15	.05	23009	TP415	S-6-05	DT6S5	AVC Filter *
16	220	23006	MC240	M-5-325	SW5T25	Audio Plate Bypass
17	47	23025	MC225	M-5-45	SW5Q5	RF Bypass Vol. Cont.
18	100	23227	MC235	M-5-31	SW5T1	Osc. Grid Cond.
19	5100	23230	MC465	M-5-25	LD5D5	RF Coupling
20	5100	23230	MC465	M-5-25	LD5D5	Fixed Fadder

*Parallel two type UT-203 capacitors.
*Used in initial production only.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		PACKARD-BELL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
21	1	250734	MT48	D13-153	M-50-2	Volume Control
22	1	250734	MT48	D13-153	M-50-2	Attach to 20A per instructions.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		PACKARD-BELL PART No.	MALLORY PART No.	IRC PART No.	IRC PART No.	
21	300	73008	73008	BM-2-39	BM-2-39	Or.-White-Blk. RF Cathode
22	4700	73003	73003	BTS-4700	BTS-4700	Yl.-Vi.-Red RF Plate Load
23	1000	73007	73007	BTS-10A	BTS-10A	Br.-Blk.-Or. Grid Load
24	22K	73041	73041	BTS-22K	BTS-22K	Red-Red-Or. Osc. Grid
25	2.2 Meg.	73055	73055	BTS-2.2 Meg	BTS-2.2 Meg	Red-Red-Grn. AVC Network
26	270	73057	73057	BM-2-270	BM-2-270	Red-Vi.-Br. 1st Cathode
27	4.7 Meg.	73047	73047	BTS-4.7 Meg	BTS-4.7 Meg	Yl.-Vi.-Grn. 1st AF Grid
28	1000	73053	73053	BTS-100K	BTS-100K	Br.-Blk.-Yl. 1st AF Plate Load
29	1 Meg.	73053	73053	BTS-1 Meg.	BTS-1 Meg.	Br.-Blk.-Yl. 1st AF Plate Load
30	270	73074	73074	BM-1-270	BM-1-270	Red-Vi.-Br. Output Grid
31	1000	73126	73126	BT-2-1000	BT-2-1000	Red-Vi.-Br. Fixed Bias
32	2700	73079	73079	BTA-2700	BTA-2700	Red-Vi.-Red Filter
33	470	73009	73009	BM-2-47	BM-2-47	Yl.-Vi.-Blk. SW Osc.

CHASSIS—BOTTOM VIEW

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	SEC. 3	PACKARD-BELL PART No.	STANCOR PART No.	THORDARSON PART No.
64	117V. @ .320A.	410V @	5.8V @ .050A.	2.3A.	89001A	P-6120	T-13R20

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	IMPEDANCE		DC RES.		PACKARD-BELL PART No.	STANCOR PART No.	THORDARN PART No.	
	PRI.	SEC.	PRI.	SEC.				
235	44.00Ω	3Ω	6.00Ω	.56Ω	89401B	A-387B	T-13539	

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		PACKARD-BELL PART No.	JENSEN PART No.	
36	FIELD PM VC IMP. 2-25	83202	ST-105	
37	CONC DIA. 4-5/16" VC DIA. 1 1/2"	NOT READILY REPLACABLE--USE COMPLETE SHAVER UNIT.		

RF COILS

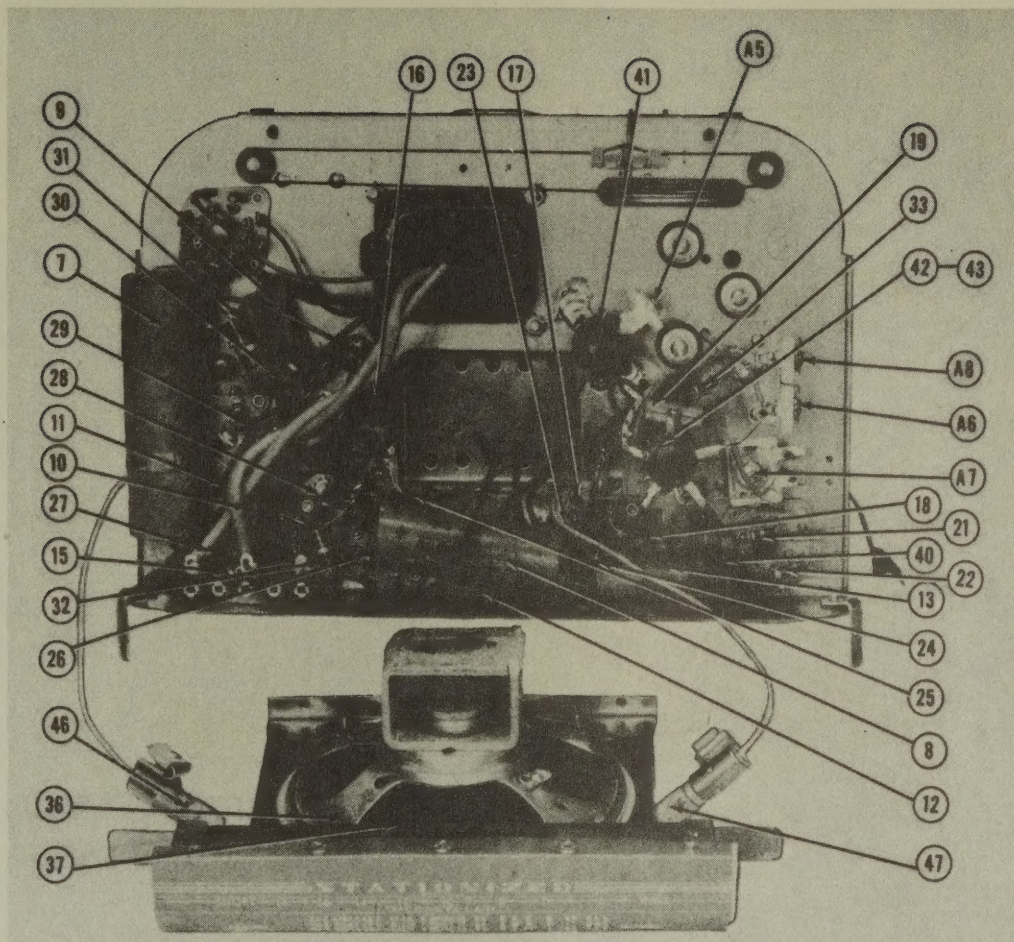
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	PACKARD-BELL	MEISSNER PART No.	
38	Loop Ant.	.2Ω	1.8Ω			Part Number Includes 5700Ω .5 Watt Resistor
39	Sw Ant. Coil		Ω	29302C		
40	Peaking Coil			29402		
41	Wave Trap	3Ω		29006		
		5Ω				
42	BC Osc. Coil	5Ω	5.5Ω	29005		Wound On Same Form With SW Osc. Coil
43	SW Osc. Coil			29204A		
44	Input IF	17Ω	15.5Ω	29204A		
45	Output IF	16Ω	16Ω	29004D	13-8658	
				29001D	16-8660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PACKARD - BELL	PART No.	
46	Bayonet	6-8	0.15	Brown	54002		Type 47 ⁿ
47		6-8	0.15	Brown	54002		

MISCELLANEOUS

ITEM No.	PART NAME	PACKARD-BELL PART No.	NOTES
48	Bard Switch	86002C	2 Gang Variable Cap.
49	Tuning Cap.	23504D or 23510	IF Wave Trap Adj. 3-50 MMF.
A5	Trimmer	23403A	EC Osc. Trimmer 3-50 MMF.
A6	"	23403A	EC Osc. Trimmer 300-850MMF.
A7	"	23403A	SW Osc. Trimmer 3-50 MMF.
A8	"	23403A	SW Antenna Trimmer 3-50 MMF.
A9	"	38026A	Standardized
	Dial Scale	38007	Export
	Knob	C52008D	Plastic-Walnut
	"	A52008D	" -Bleach
	Handle	A49404E	" -walnut
	"	B49404E	" -Bleach
	Cabinet	E21003D	Wood - Walnut
	"	B21003D	" - Bleached



OPERATING INSTRUCTIONS

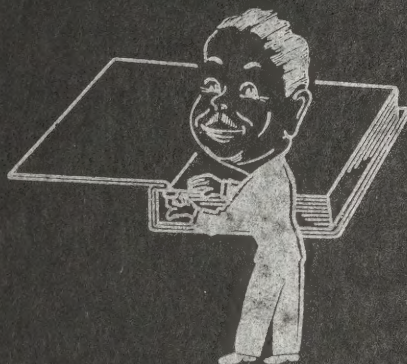
for

"B" FAST ACTION BINDER



TO OPERATE BINDER

Grasp the front and back covers at center of edges and pull both right and left, permitting sheet to lie flat.



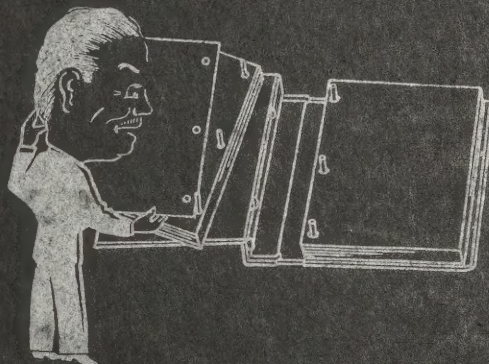
TO UNLOCK BINDER

To unlock binder, pull lock, allowing cover to open.



TO CHANGE SHEETS

Separate sheets at desired place, lift posting bar with sheets above page where change is to be made, then insert or remove sheets.



ADDITIONAL CHANGES

Turn to page where next change is to be made, remove the sheet on posting bar, then insert or remove sheets.

TO LOCK BINDER

Replace sheets with bar attachment. Replace top covers so that studs slip into metal eyelets, then push metal lever and binder is locked. Expansion is automatic when sheets are added.

MANUFACTURED
BY

VEVIER LOOSE-LEAF COMPANY

INCORPORATED

2533 SULLIVAN AVENUE

ST. LOUIS 7, MISSOURI

